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POLLUTION OF INTERSTATE WATERS OF THE PUGET SOUND, STRAIT OF JUAN DE FUCA AND THEIR TRIBUTARIES AND ESTUARIES - STATE OF WASHINGTON. 1ST SESSION HELD AT OLYMPIA, WASHINGTON ON JANUARY 16-17, 1962. VOLUME I, JANUARY 16. TRANSCRIPT OF CONFERENCE

Public Health Service
Washington, D. C.

1962

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PB 229 618

TRANSCRIPT OF CONFERENCE

IN THE MATTER OF

POLLUTION OF INTERSTATE WATERS

PUGET SOUND, STRAIT OF JUAN DE FUCA
AND
THEIR TRIBUTARIES AND ESTUARIES -
STATE OF WASHINGTON

5472437

First Session

January 16-17, 1962

Olympia, Washington

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Volume I

January 16

265

CERTIFICATE

CERTIFICATE

THIS IS TO CERTIFY THAT, the attached proceeding before the Joint Federal-Washington State Pollution Control Conference, in the matter of:

Pollution of Waters of Puget
Sound, Strait of Juan de Fuca,
Tributaries and Estuaries,

had at Olympia, Washington, under date of January 16, 1962, were had as therein appears and that this is the original transcript thereof for the files of the Public Health Service, Department of Health, Education & Welfare.

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OFFICIAL REPORTER.

BEFORE THE

U. S. PUBLIC HEALTH SERVICE

and the

WASHINGTON STATE POLLUTION CONTROL COMMISSION

On the Matter of:

POLLUTION OF WATERS OF PUGET SOUND,
STRAIT OF JUAN DE FUCA, TRIBUTARIES
AND ESTUARIES.

Large Conference Room,
First Floor,
General Administration Bldg.,
Olympia, Washington.
Tuesday, January 16, 1962.

Pursuant to notice, the above-entitled matter came on for conference at 10:15 o'clock a.m.,

BEFORE:

JOINT FEDERAL-WASHINGTON STATE POLLUTION CONTROL CONFERENCE

MR. MURRAY STEIN, HQ, Department of Health, Education & Welfare, Washington, D. C.; Chairman.

MR. LEONARD DWORSKY, Officer in Charge, Department of Health, Education & Welfare, Portland, Oregon; Conferee.

MR. JAMES M. QUIGLEY, Assistant Secretary of Health, Education & Welfare, Washington, D. C.; Conferee.

MR. WALLACE W. BERGERSON, Director, Washington State Pollution Control Commission, Olympia, Washington; Conferee.

MR. EARL COE, Chairman, Washington State Pollution Control Commission, Olympia, Washington; Conferee.

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PROCEEDINGS

FIRST DAY

MORNING SESSION

CHAIRMAN STEIN: The conference is opened.

This conference is being held under Section 8 of the Federal Water Pollution Control Act. Under the terms of this act, the Secretary of Health, Education and Welfare, is authorized to call a conference of this type when requested to do so by the governor of a state. In a letter dated November 22nd to the Honorable Abraham Ribicoff, Secretary of Health, Education and Welfare, Governor Albert D. Rosellini made such a request. Secretary Ribicoff answered this and said he was very very happy to comply with this request and in accordance with the terms of the law, a notice was sent to the officials, State Water Pollution Control Agency of Washington -- that is, the Washington State Pollution Control Commission. Under the terms of this notice, the conference covers all the waters of the Puget Sound, the Straits of Juan de Fuca and their tributaries and the waters of the Upper Columbia River and its tributaries. The tributaries, of course, are limited for these purposes to navigable tribitaries and those within the State of Washington. We have agreed with the representatives of the State of Washington that this session of the conference will just be concerned with the waters of Puget Sound, Straits of Juan de Fuca and the tributaries thereto and a subsequent session will deal with the waters of the Upper Columbia River.

The purpose of the conference is to bring together State and Federal authorities and other interested parties to review the existing situation, progress which has been made and to lay a basis for any indicated future action.

The conference also has as its purpose, the giving of localities and industries, an opportunity to take any indicated action under State and local laws.

In order to comply with the terms of the act -- the Federal Act, we have notified the official State Water Pollution Control Agency of Washington of this conference. That Agency is the Washington State Pollution Control Commission. Under the law, this is a conference between the official State Water Pollution Control Agency of Washington and the Federal representatives. The State, of course, may bring anyone it wishes to the conference and have those people participate in the conference; but this is a conference between the official State representatives and the official Federal representatives.

Both the State and the Federal Government, as you know, have responsibilities in dealing with water pollution problems. The Federal Act, as a matter of fact, states that the primary responsibilities and rights of controlling water pollution rest with the states. In addition, we are charged by law in the Federal Government to encourage state action to abate pollution of navigable waters. However, the Secretary of Health, Education and Welfare also is charged by law with specific responsibilities in the field of water pollution. Pollution of navigable waters, which endangers health or welfare of any person is subject to abatement in accordance with the provisions of the Federal Act.

Now, I think we all must recognize this dual relationship and the relationship of the Federal Government and the states. Our purpose here is to encourage the State in every way possible.

Now, in accordance with the terms of the Act, at the conclusion of the conference, we are required to prepare a summary of the conference. This summary must contain the following, as a minimum -- that is, a section on occurrence of pollution of navigable waters subject to abatement under the Federal Act; (2) The adequacy of measures taken toward abatement of pollution; and (3) The nature of delays, if any, being encountered in abatement of this pollution. In order to help us provide a serviceable summary, we suggest that the conference discussions be directed toward covering these points.

A word about the procedure governing the conference: We have a stenographer, Mr. Bill Chun, making a verbatim report, so we may have a clear record of what is said and done here. The conference summary and this verbatim report will be available to interested parties. However, we suggest that you get in touch with the Washington Water Pollution Control officials. We will make a supply of these documents available to them and the State will make the distribution of this rather than the Federal Government. We have always found this has been a satisfactory way of doing this so the lines of communucation are kept between your State Water Pollution Control Agency and the people in the State interested in the problem.

In addition to that, we have prepared an agenda for covering the conference. This agenda is a guide. We will try to adhere to it as closely as possible but it is not sacrosanct and if necessary, we will make certain deviations from the agenda.

Now, what we do is generally call upon the conferees to make a statement and have the conferees name the invitees they have asked to participate and make statements. At the conclusion of these statements, the conferees are privileged to make a comment or ask a question and at the conclusion of the round of questions, I may ask a question or two also. We have found that this is an orderly procedure in developing information and in arriving at equitable solutions.

Now, with this, we'd like to call on Mr. Earl Coe, Chairman of the Washington Commission to introduce Governor Rosellini. Mr. Coe?

MR. COE: Gentlemen, I appreciate this opportunity today to introduce a man who has been vitally interested in this great problem we have over the State of Washington and those of us on the Commission of course are on his staff -- members of his cabinet. So I have today, the great privilege of introducing Governor Rosellini.

(Applause)

GOVERNOR ROSELLINI: Thank you, Mr. Coe. Mr. Quigley, distinguished visitors from the National Capitol and ladies and gentlemen. I am here just for a few moments this morning to certainly emphasize my feeling of the importance of this conference and to extend to not only our visitors from Washington, D.C., from the Federal Government, but to all of you, a most hearty welcome to this conference.

In my few remarks, I want to point out in the first instance that I think generally speaking, all of the people of the State of Washington subscribe to the provisions set forth by the Legislature of 1945, which established the Washington State Pollution Control Commission. I think many of you will recall that that Act was passed after many years of struggling in an effort to try to get an act on the books of the State of Washington that would be equitable to all sides. I think that the purpose of the Act, which provides that it is established for the purpose of trying to maintain the highest standards possible for the purpose of seeking the purity of the waters in the State of Washington for recreational and other purposes consistent with industrial development, is something that generally speaking, all of us certainly can support and have supported in the past. The Legislature, by its action, I think recognized the fact that here in our State of Washington, water and water resources is one of the most important assets that we have. I think probably we all recognize that sometimes we get a little too much water at the wrong time and in the wrong place, but be that as it may, I know that we regard water and water resources as a real asset that has done much in the past and will do much in the future to contributing to the welfare and recreational enjoyment of our great State.

Consistent with the Act of the Legislature, I am proud of the fact that in the last several years under this administration, we have made some tremendous headway in purifying and cleaning up some of the waters here in the State of Washington; and I am proud of the fact that this has been done with the fine cooperation of many of the industrial firms here in the State of Washington as well as other groups. We were happy to see the Federal Government by the action of the Congress, make amendments to the Federal Pollution Control Act, which enables them to more effectively work with different states throughout the nation for the purpose of maintaining this great resource to all of the people of the United States. We were most happy to have the Secretary, Abe Ribicoff respond to our request for the purpose of holding this initial conference -- initial not only in this State, but initial as I understand in the United States, for the purpose of discussing with the conferees, ways and means and to try to set up guideposts for the purpose of trying to find a solution to some of the knotty problems that always go with pollution. I am happy this morning to extend a hearty welcome to Mr. Quigley and the other members of the Federal Administration. I am sure that out of this conference will come some constructive suggestions and constructive guideposts to help us all try to do the job that we would all like to see done for the people of the State of Washington.

Thank you so much.

(Applause)

CHAIRMAN STEIN: You know, in Washington, we have an expression we say, "Except for the President, everyone in Washington has a boss." And at this point, I'd like to introduce my boss, a distinguished member of the Administration, Assistant Secretary of Health, Education, James M. Quigley, who is in charge of Federal water pollution control activities. Mr. Quigley.

(Applause)

MR. QUIGLEY: Thank you, Murray. Members of the conference, my role in this particular conference is to listen rather than to speak, but I do want to indicate by my presence here that the matter of water pollution control has taken on new meaning and new signficance in the Nation's Capitol and at the Federal level. As your Chairman pointed out in his opening remarks and as Governor Rosellini made clear, the matter of water pollution control is basically and fundamentally a local and State matter. But this does not mean that the Federal Government does not have an interest and this does not mean that the Federal Government does not have a responsibility. And at the recommendation of President Kennedy, the Congress this past summer, in the first session of this current Congress, passed extensive amendments to the basic Federal Act. These amendments called for a broad, sweeping attack on water pollution in this country --a three-fold attack, as it were -- research, because we have to be honest and frank -- we do not have all the answers to all the pollution problems that plague industry and that plague our communities and that plague this country; construction -- the Congress has authorized a program where ultimately we will be spending a hundred million dollars a year of Federal dollars to aid local cities, local communities, build sewage disposal plants to prevent the continued pollution of our streams in this country; and the third aspect of this attack is of course enforcement. Congress made clear that the basic responsibility as far as enforcement is concerned, rested with the states; but it also made clear that the Federal Government should be able to act and should act when, as and if it became necessary. So I'm here today and have been here for the last two days -- first, because this is a new assignment with our department. The responsibility for the administration of the Water Pollution Control Program was transferred from the Surgeon General to the Secretary of Health, Education and Welfare and secondly, because Secretary Ribicoff designated me as the person within our department to be primarily responsible for implementation of this program. And the third reason of course, I'm here is, as the Governor indicated, this is the first instance where, under the new Act, under the new provisions of the law, a Governor has extended an invitation to our Department to come in and to set up a conference such as we're about to see. We're here today, I think, as I told the reporters yesterday, to look and to listen and to learn -- to determine if you have a water pollution problem, the nature of it, the extent of it and to appraise what you're doing about it and to also appraise what you're not doing about it. And on the basis of the information we hope to obtain at this conference, we then propose working together with the State officials, working together with the municipalities, working together with industries in this area, we then propose what we trust we will find to be a reasonable and sound approach that will seek an early and satisfactory solution to the problem. This is the first step and we hope that it will be a beginning of a constructive, forward-looking approach -- because the reason the Federal Government is interested in this problem of water pollution -- seriously interested, must be interested, is the simple fact that we can look at the statistics and we can project our population growth, we can project our recreational growth, we can project our recreational needs for the next ten or the next fifty or the next hundred years; but barring some kind of a scientific breakthrough, we can't look to an increased amount of water. So this means that if we're going to meet our domestic, our industrial and our recreational needs in water in the years ahead, we're going to have to develop new techniques, new approaches, for use and reuse of the existing, non-expanding water supply of this Nation. And this is why this is a national problem; this is why this is a problem about which the Congress of the United States is rightfully concerned and this is really why we're here in the State of Washington today, with the hope that by working together with you people, you can make a contribution to a solution to the problem that will benefit your own State in the doing, benefit the entire Nation.

CHAIRMAN STEIN: Thank you, Mr. Quigley.

(Applause)

CHAIRMAN STEIN: At this point, I should introduce the people on my left and right. The official conferee for the State of Washington is Mr. Wallace W. Bergerson, Director of the Washington State Pollution Control Commission and with him of course is Mr. Earl Coe, Chairman of that Commission. The official conferee for the United States is Mr. Leonard Dworsky, Officer in Charge of the Portland office of the Department of Health, Education and Welfare; and with him, of course, is Mr. James Quigley, the Assistant Secretary. My name is Murray Stein, and I'm from Headquarters, Department of Health, Education and Welfare in Washington.

I'd like to say, Mr. Coe and Mr. Quigley, please consider yourselves for all intents and purposes, conferees. We would be happy to have your comments or questions at any time.

At this point, we would like to call on Mr. Bergerson for the presentation of the situation as the State of Washington sees it. Mr. Bergerson.

MR. BERGERSON: Mr. Chairman, distinguished guests, ladies and gentlemen -- first, I want to say that I am most happy to be here to participate in this conference, it being one of the trial runs, so to speak, in this type of program. We have a rather formal presentation prepared, so I won't endeavor to deviate too much from it. We're now at the point where we are presenting the testimony by the State of Washington, and the first speaker I'm going to call on will be Mr. Earl Coe, who will speak on state policy. Mr. Coe.

MR. COE: Mr. Bergerson, gentlemen from Washington, Mr. Quigley, first, I want to introduce members of the Commission, that serve on this Commission by statutory law -- Mr. John Biggs -- if you'll please stand, John -- Mr. John Biggs, the Director of Game and Mr. George Starlund, the Director of Fisheries, Mr. Joe Dwyer, the Director of Agriculture and Dr. Bucove, who was called out for a few minutes, the Director of Health, and myself, as the Director of Conservation. I am elected to this position by these members and have served now for some five years in this capacity as Chairman of the Pollution Control Commission, working with Mr. Bergerson as the Director.

Now, I have a few remarks that I want to read into the record at this time as the policy matter of the Commission.

The laws of the State of Washington declare that it is public policy to maintain the highest standards for the purity of the waters of the State. We of the Pollution Control Commission are firmly dedicated to this policy, since by statute, we have administrative responsibilities and obligations to the water users of the State, whose health and welfare is dependent upon the quality of this natural resource. We are aware of the fact that such progress in water quality management has been made in this State. At the same time, we are aware of problems that have not been solved; and furthermore, we know that new and even more complete water quality problems will accrue with many of our technicological advances in the future. It is our belief that we can best fulfill our responsibilities in water quality management if we wisely use all the skills and talents available to us.

Thank you, gentlemen.

CHAIRMAN STEIN: Before you go on, Mr. Bergerson, I would suggest that any one called up to participate from the audience, come up to the lectern and if you have a written statement, it will be appreciated if you would give that to the Reporter before making your oral statement. Thank you.

MR. BERGERSON: Thank you, Murray; thank you, Mr. Coe. The next speaker will be Mr. John Riley, who will speak on state statutory responsibility. Mr. Riley is the attorney for the Commission in handling this matter. Mr. Riley.

STATEMENT OF MR. JOHN RILEY

MR. RILEY: Mr. Secretary, Mr. Chairman, members of the conference and ladies and gentlemen, I am pleased and privileged to represent the office of Attorney General John O'Connell in this conference and to speak to you briefly with respect to the legal responsibilities of the State Enforcement Agencies in the matter of water pollution control and I suppose incidentally, I should address the conference with respect to our legal problems in this particular field.

We think that the legal tools that are available to the State of Washington are adequate and are as effective as any that are available to any of the states. This is not to say, however, that these tools do not perhaps need some strengthening and that there are not some difficulties inherent within the legislation; but without burdening the conference and you that are in attendance with too many of the details, I can state that generally the essential mandate of our law is to require the use of all known and reasonable methods of pollution abatement. Our permit law, on the other hand -- and these statutes, of course, are superoanterior and contemplates that industrial users may make use of waters of the state and discharge certain wastes as long as they do not unreasonably interfere with other water users. Of course, we have the question of municipal pollution and this has been handled generally under provisions which have proved fairly effective. They are generally confined to the requirement that municipalities obtain approval of any installation for the handling of waste discharges from those cities. Machinery for abatement of pollution situations developing within municipalities has not yet been developed or tested and as to that, of course, we would have no opinion.

Now, our statutes have been implemented with a fairly comprehensive administrative -- set of administrative regulations, which have been published by our Commission. They promulgate standards both for municipal and industrial usages, which we believe are adequate. Of course, there are those in attendance that might challenge that.

The permit system itself and how it is working as a function of the 1955 amendment to the Water Pollution Control Acts will be commented upon by others that are responsible for its administration. However, I think this conference will be interested in legal proceedings which are now underway in which the adequacy of our legal tools which we have available through the State for coping with industrial pollution is being put to a very severe test.

In point of time, I would take the most recent case that we have, which involves a fish kill case -- we refer to now as our "Fish Kill Case", which we have had under investigation for some time, which was filed only yesterday. In this case, we seek recovery of damages to an anadromous fisheries run in the Duwamish River. The Duwamish River is wholly within the State of Washington. Approximately two thousand salmon were destroyed by a fairly, what we believe to be wanton discharge of toxic chemicals. We seek also injunctive relief. We believe that the cause and effect of this discharge can be proven and that we have a good case although our theory for recovery of damage may be put to a test. It is based in general upon the cost to the State of replacing an adequate number of fingerling to produce a same number of returning migrating salmon plus an injunction. And then we are engaged simultaneously in administrative -- contested administrative proceedings which are quasi judicial in character involving eleven pulp and paper installations within the State of Washington. In these cases, the essential legal issues are first, "what are the effects of the pollutants on the receiving waters -- the biota within the waters and the effects upon other users of this particular resource, the water."

Now, we are fairly confident that we can show effect, although obviously the proof of the effect that these waste discharges might have upon the biota is not as clear as in our fish kill case, we feel that we have a good case and our technicians have worked long and hard and have a fairly comprehensive group of statistics and studies that they have developed over a considerable period of time. However, this is not to say that further studies and research that will produce additional evidence is not important and we hope that this conference will provide an impetus in that direction.

And secondly, the principal issue involved in our pulp industry cases is whether the methods contemplated by the permits issued -- temporary permits issued by the Pollution Commission, to which exception has been taken by the industry, thus precipitating our cases, are known and reasonable methods within the meaning of our State Permit Law for the handling of the discharge of this waste material, or pollutants, to be more succinct and frank. Now, this means in an intrastate enforcement proceeding, that we have a practical as well as a legal difficulty and that is whether or not the employment of these means of abatement anticipated by the permit conditions excepted to can be accomplished on a reasonable basis and we have taken the position that that means not necessarily, but that it can mean an economic basis, and we have taken the position that it can be shown to be economic. That is to say, will the benefits offset the cost or is the cost unreasonable if it will not. Even if the methods required by the permits are known and reasonable, and legally reasonable, we would perhaps have a problem. I think our Commission would as an administrative policy, if it developed that they were so marginal that to require adequate compliance, the Washington industry would be placed on a non-competitive basis with the industry in other states. Now, in a close case, it might even depend upon whether or not the Congress would be willing to grant tax incentives to the industry that are willing or are required to comply and to employ substantial capital necessary to accomplish substantial pollution abatement, and that might even incidentally be one of the recommendations that this conference might consider. So that with respect to that legal issue, which I think is one we believe that it can be shown that there are known and reasonable methods. We believe that is true because some installations in the State of Washington -- and we presume that they operate on an economic and a sound fiscal financial management basis, have converted older mills. Of course, we would be interested in our State to see that they were converted and that they were modernized to the more sophisticated processes of manufacturing, not only because it would abate the discharges of vast quantities of waste materials, which will be discussed later, but because it would assure us of the continued operations of those mills -- if, as we contend is the case, there are economic benefits to be derived from such conversions, in terms of lower cost of chemicals, higher yield from the raw materials, have broader variety of merchandise and higher quality merchandise.

We have a great many legal and constitutional issues involved in our proceedings. The delays, I would say, are most frustrating. It had been our hope, frankly, to have begun hearings on the factual matters involved in these cases by now. We have engaged in over four months of pre-hearing conferences before a Conference Examiner -- that is to say, a Hearing Examiner, in an attempt to iron out the issues of law and fact in the cases; but at this juncture, the actual hearings on matters of fact are about as far away as they were when we began the -- the proceedings were initially precipitated. This delay might be worthwhile if we can, with Federal assistance, develop the basis as I have indicated earlier. I think that at this juncture, we are at a point in history similar to that in which the timber industry found itself perhaps -- not too long ago. They found that they could not afford to forego good conservation practices in terms of seeding and fire control, slash burning and so forth. It may well be, therefore, that we are at that same juncture with respect to our State and the pulp industry.

If there are any questions, I would be pleased to answer them at this time.

MR. DWORSKY: You said that there was a delay so far of four months and yet your first hearing, as I understand it, is still scheduled for May, into the future, is that correct?

MR. RILEY: No hearings are scheduled, Mr. Dworsky, at this juncture. The Hearing Examiner, under the order of the Commission directing fixing the procedures for the conduct of the hearings, places that responsibility upon him; however, we have not resolved legal issues of law and of fact. That is to say, we have not agreed upon a pre-hearing order or pre-trial order, as the case might be, which will identify the issues of law and fact to which we will direct ourselves. The legal issues -- for instance, one of the members of the industry submitted a statement of over -- I believe sixty issues as he saw it, including constitutional questions, so we have a great many of those problems to iron out. Our statement of what we consider to be the common and essential legal issues of the case involve twenty-four legal questions, which we might conceive to be questions, although we were confident that they would be resolved in favor of our position; and our position, of course, is to contest this case as advocates on behalf of the Commission.

MR. DWORSKY: Just one more question: Do you see an end point here in the near future or are you saying that with respect to the matter of nature of delays, you cannot see some reasonable end point here as to --- (interrupted)

MR. RILEY: I am hopeful that -- as a matter of fact, we have been negotiating with two of the installations and we have every confidence that we will be able to enter an agreed order in which agreement will have been reached for the abatement of the essential problems, with respect to those two installations. With respect to others, however, I -- I would say also that certain portions of our statute, we would like to have tested legally, so that if we need to have them amended and submit amendments to our State Legislature, we would like to have had that accomplished prior to the next session of our State Legislature. I don't believe that that will be accomplished and I would hesitate to guess when we will get into the hearings or how long it will take. I would say that this is very definitely -- was referred to in the legal literature as a protracted case and a very protracted case, and there will be some additional delay, although we are meeting almost every week and hammering and tonging these questions out over the conference table under the direction of the Hearing Examiner.

CHAIRMAN STEIN: Mr. Riley, is it safe to assume that the State did consider there was a pollution problem that needed abatement by requiring these additional facilities in the permits?

MR. RILEY: Oh, certainly, we are proceeding on that basis.

CHAIRMAN STEIN: Now, as I understand it, and again I raise this question just on a question of getting clean water -- there is nothing in your law or procedure in the State that requires the industry to contest this or go into these protracted hearings but they could go along with the permits -- the law wouldn't object to their doing that?

MR. RILEY: Not at all; not at all.

CHAIRMAN STEIN: Thank you. I don't have any questions.

Thank you, Mr. Riley.

MR. RILEY: Thank you.

MR. BERGERSON: Thank you, John. Well, as all of you know, this pollution problem in the State and over the country has been going on for a very long time and in preparation for this meeting, the staff of the Commission has prepared a relatively lengthy statement on what has transpired and what our problems are. I could make various and sundry remarks as to what values we place on our water resources and all that sort of thing, but I think that has been brought to you in pretty good form already by our Governor and by Mr. Quigley and others, so at this time, I will call on members of the Commission staff to make this presentation. We've divided it into several parts to make the presentation easier. The first part will be given by Mr. Al Neale, who will discuss the background and the history of the problem. Mr. Neale.

PRESENTATION ON BEHALF OF WASHINGTON STATE POLLUTION CONTROL COMMISSION

PRESENTATION BY MR. ALFRED NEALE

MR. NEALE: My remarks will have both statewide significance as well as special reference to the waters of Puget Sound and those waters under discussion today.

The pollution control programs of the State of Washington may be historically divided into three stages of development. These include the individual state agency programs, a coordinated interagency fact-finding program, and a coordinated interagency and enforcement program to prevent and control water pollution.

All of these programs have sought to maintain the highest possible standards of water purity for those uses of water which are dependent upon quality. Traditionally, the enforcement agencies have sought the investigation and control of pollution at its source.

A brief review follows of each of these three phases of pollution control administration.

THE INITIAL POLLUTION CONTROL EFFORT -- The early problems of water pollution were administered by representatives of the Department of Fish and Game and by the representatives of the Department of Health on a case-by-case basis in accordance with the water uses affected.

Water pollution problems resulting from increased volumes of municipal waste discharge were initially detected in those areas of the state in which the summertime river flows are low and the water is warm. The original recognition occurred in 1935 when the State Legistlature authorized and financed a special water pollution survey of the Yakima River by representatives of the State Department of Health.

Municipal sewage treatment programs were initiated in these and other areas under guidance of the State Department of Health. Significant expansions to these early sanitation programs occurred as a result of assistance given by the

Works Progress Administration.

Between the years of 1925 and 1937, the industrial expansion of the state included significant developments in the production of chemicals and pulp. The waste discharge by these industries soon attracted much public attention and were of concern because of their influence on the commercial and sports fisheries resource of the state.

The preliminary investigations and initial attempts to prevent and control pollution were undertaken by representatives of the Department of Fish and Game, which existed as a single agency at that time.

Increasing economic development of the state, together with increased public awareness of the pollution problems, resulted in a recognized need for a coordinated pollution control fact-finding effort by those agencies directly concerned with the water resources of the state.

THE INTRA-AGENCY INVESTIGATIONS -- In 1937, the Washington State Pollution Commission was created by proclamation of the Governor. This Commission was comprised of representatives of the Departments of Conservation, Health, Fish and Game, with technical administration being under the State Department of Health.

This Agency was dedicated to fact-finding and pollution investigations, many of which resulted in the development of recommendations for the prevention and abatement of pollution.

Much agency effort was directed toward investigating biological effects of sulphite waste liquor and evaluation of water quality conditions in the vicinity of suphite pulp mills.

The major pollution abatement programs initiated during this time, as a result of these investigations, included: (1) A water quality management and monitoring program for the Grays Harbor Area; (2) The construction of an incinerator for the burning of ammonia base liquor at Shelton; (3) The completion of a pilot plant research project and the commencement of construction of an MgO suphite waste liquor recovery system at Longview. This new process represented an important breakthrough with respect to the recovery of useful products from sulphite waste liquor. The fourth area of progress included the municipal sewage treatment construction programs which continued at a steady pace during these years with major activity in Eastern Washington, including the construction and enlargement of treatment plants by the larger cities. In Western Washington, there was a corresponding increase in municipal treatment plant planning and construction.

ACTIVITIES OF THE POLLUTION CONTROL COMMISSION -- The Pollution Control Act of 1945 (RCW 90.48) dedicated the State of Washington to a policy of maintaining the highest possible standards of water purity and specified that all known available and reasonable methods would be utilized in order to prevent and control pollution.

This law clearly specified that preventative as well as corrective programs were to be activated by the Pollution Control Commission and this law served the purpose of strengthening and expanding the previously activated pollution control programs of the Departments of Health, Game and Department of Fisheries.

The following amendments have been added to the original law: (1) Chapter 58 of the Laws of 1949, which allows the Commission to cooperate with Federal agencies and to accept grants and assistance from them; and (2) Chapter 71 of the Laws of 1955, which direct the Commission to issue permits for the discharge of waste materials and to specify in these permits the conditions necessary to prevent undue pollution in accordance with declared public policy.

THE COMMISSION POLICY AND PROGRAMS -- The Pollution Control Commission has adopted statements of Policy and Procedure which are directives to its staff as well as to waste dischargers.

The Commission has declared that a minimum of primary treatment and disinfection must be provided for sanitary wastes and that the long-range policy with reference to Lake Washington is that sewage shall be treated and all treated effluents must eventually be diverted from Lake Washington and Lake Sammish.

The Commission has also adopted a series of standards for the waters of the state, which serve as a guide to the staff.

In order to activate its programs of pollution prevention and control, it has been the practice of the Commission to define reasonable abatement methods as: (1) Those which are in use by the more efficient members of any given type or general class of industry; (2) New processing and recovery or abatement methods which are developed through research and subsequently demonstrated as reasonable; (3) The conventional methods in use for the treatment of municipal wastes.

The known, available and reasonable methods to control pollution are defined as those methods in general usage which may be necessary to fully protect all water uses.

Whenver reasonable methods to control pollution are not readily available, it has been the practice of the Commission to authorize the use of expedient methods to abate water pollution. These methods, which include deep water diffusor lines, have been approved for limited periods of time ranging from three to five years. The Commission has recognized the need for research to develop methods for recovery, utilization or treatment of waste materials, and expects systematic progress and the utilization of new techniques as they become available.

A case in point involves the present trends within the sulphite pulping industry whereby some of its members either have or are in the process of converting to new pulping techniques, which allow for conversion of waste materials to useful products and which have the corollary effect of reducing pollution.

The pollution prevention and control programs of the Commission have been activated under the broad categories of municipal and industrial sources.

The municipal sources include municipalities, metropolitan areas, state and Federal installations and agencies.

Industrial sources of waste are considered by general category of industry to include food processing, mining and sand and gravel, lumber, metal-oils-chemicals, pulp and paper and miscellaneous industries.

The municipal programs of pollution control were initiated by the Commission letters to each municipality and through the issuance of statements of policy and by staff liaison and contact. Programs with the institutions of the state were initiated by the 1945 statement of policy and subsequent staff contact and liaison. Programs involving Federal installations have been intiated by staff contact and by the development of pollution control requirements based upon local needs. These are requested in accordance with existing presidential proclamations call for cooperation with the programs of the State.

The industrial waste pollution control programs of the Commission were originally initiated by staff contact and by reference to pertinent water quality standards, water quality objectives and minimum requirements for the prevention and control of pollution.

Since June of 1955, the industrial waste disposal program of the Commission has been formalized by means of the issuance of waste discharge permits which contain the requirements necessary to prevent pollution in accordance with declared public policy.

CHAIRMAN STEIN: Mr. Neale, will you talk a little louder? I think they are having difficulty hearing you in the back.

MR. NEALE: The permit system is of special importance since it provides a method for new industry to become aware of the pollution program of the State and the water quality problems involved in proposed area of location. The waste discharger is also assured that the continuous compliance with the permit specifications will keep his operation in harmony with the pollution control programs of the State.

That's the end of my presentation.

MR. BERGERSON: Thank you, Al.

CHAIRMAN STEIN: Are there any questions?

MR. DWORSKY: Mr. Neale --- (interrupted)

CHAIRMAN STEIN: Mr. Neale, would you mind coming back?

MR. DWORSKY: On page 4, you noted that the practice of the Commission is to use reasonable abatement methods and you've defined them; and I assume that we can go on the basis that the permits that you have issued are in anticipation that there are reasonable methods available to reach the conditions that you've specified in your permits?

MR. NEALE: I think in part, the answer to this problem will come out with negotiation and staff work with the people who receive the permits. On the other hand, many methods and many requirements that we have developed, we feel that there are known and reasonable methods to take care of these situations.

MR. DWORSKY: Thank you; that is all.

CHAIRMAN STEIN: Mr. Bergerson?

MR. BERGERSON: The next part of our presentation will be on the general description of the area and the water uses which are made in this area. I'm sure that we all know that we're in Puget Sound, but Puget Sound has many and varying inlets and parts to it which most of us don't usually get around to thinking about. This presentation will be made by Mr. Charles Ott. Mr. Ott?

PRESENTATION BY MR. CHARLES OTT

MR. OTT: The general land description -- my presentation will now be concerned only with the Puget Sound area.

The Puget Sound and Strait of Juan de Fuca areas as depicted in this presentation extend from Tatoosh Island at the extreme northwest corner of the state to the Cascade Mountains lying east of Puget Sound. The Cascades, as well as dividing the state climatically and geographically on a north-south line, is the eastern boundary of the Puget Sound basin. The tributary area extends from just north of the Canadian border to Mt. Rainier on the south. All of the major rivers tributary to the Sound have their head waters either in the Cascades or the Olympic Mountain ranges. Some of the major peaks in this area are Mt. Baker, Glacier Peak and Mt. Rainier. The Olympic Mountains on the west separate Puget Sound from the Pacific Ocean. These mountains are part of the range that extends along the coast of Washington, Oregon and California and are interrupted only by the Straits of Juan de Fuca and such places like that and the Columbia River. The highest peak in the Olympics is Mt. Olympus, of about eight thousand feet. The southern boundary is along the extremities of the Deschutes and Nisqually River basins and the Strait of Juan de Fuca and Georgia Straits act as the northern boundary.

Glaciers in these mountains produce year-around flow in many streams in addition to the rainfall which drains into Puget Sound.

Puget Sound is characterized by many bays, sounds and inlets. It occupies an area of approximately three thousand square miles, compared to the whole basin area of about twenty thousand square miles. The Sound is approximately three times as long as it is wide, having two arms, Hoods Canal and the Puget Sound proper.

SOUTH PUGET SOUND -- The southern part of Puget Sound is generally considered as the area below the Tacoma Narrows. Typical of this area are the many long and rather narrow bays and inlets. The two major rivers tributary to this area are the Nisqually, which has a drainage area of about eight hundred square miles and an average discharge of approximately eighteen hundred cubic feet per second; and the Deschutes River, which discharges to Budd Inlet and has an average discharge of four hundred cubic feet per second from a basin of two hundred and sixty-three square miles.

CENTRAL PUGET SOUND -- Central Puget Sound extends from the Tacoma Narrows on the south to Admiralty Inlet, west of Whidbey Island and Deception Pass at the north end of Whidbey Island. There are a number of bays within this area that afford excellent harbors, such as Elliott, Port Gardner, Commencement Bays and Sinclair Inlet.

There are six major river systems tributary to the central Puget Sound area. The Skagit River is the largest river tributary to this area and has a drainage area of in excess of three thousand square miles and an average discharge of about sixteen thousand cubic feet per second.

The second largest is the Snohomish River, which drains an area of some seventeen hundred square miles and has an average discharge of approximately twelve thousand cubic feet per second. These two rivers carry approximately two-thirds of the total run-off within the Puget Sound basin. The three remaining river systems in the central region are the Stillaguamish, Duwamish and Puyallup. They range in flows from twelve hundred second feet in the Duwamish to about thirty-five hundred second feet in the Stillaguamish; and drain areas from five hundred square miles to over a thousand square miles.

Hood Canal is a long, narrow arm of the Sound that extends from Admiralty Inlet on the north to the Skokomish River approximately forty miles to the southwest. The Skokomish is the major fresh water contributor to the canal, having an average flow of approximately ninety-seven hundred cubic feet per second and a drainage area of two hundred and eighty-six square miles.

NORTHERN PUGET SOUND -- The northern part of Puget Sound basin is the area from Admiralty Inlet north to the Canadian border that includes the San Juan Islands and Bellingham Bay areas. The only major fresh water source is the Nooksack River that discharges into Bellingham Bay. This is a glacial fed river that drains an area of seven hundred square miles and has an average discharge of thirty-seven hundred cubic feet per second.

THE CLIMATE -- Puget Sound's temperate marine climate is typified by the mild, wet winters and relatively cool, dry summers.

Annual average rainfall is approximately forty-two inches in the Puget Sound lowlands and increases to sixty-four inches in the East Olympic and Cascade foothills and to ninety-three inches on the western slopes of the Cascade Mountains. Individual extremes range from a low of eighteen inches at Sequim to a hundred and twenty-three inches at Paradise Ranger Station. Average monthly temperatures in the lowlands range from thirty-eight degrees in January to sixty-three degrees in July, with a yearly average of fifty degrees. Some freezing occurs with yearly low temperatures from five to fifteen degrees and yearly high temperatures of ninety-five to one hundred.

POPULATION OF THIS AREA -- Washington's population as determined by the 1960 census is two million eight hundred and fifty-three thousand. The majority of the population, seventy-two percent of them, are located in western Washington. Sixty-one percent of one million seven hundred and fifty thousand of these people live in the twelve counties in and surrounding Puget Sound.

King County is the most populous, having more than nine hundred and twenty-seven thousand total population. Pierce County is next, with three hundred and twenty thousand and Snohomish County is ranked third with a population of a hundred and seventy-one thousand. These three counties make up the greater Seattle, Tacoma and Everett area and their suburbs.

LAND USES -- The Puget Sound area is generally regarded, in light of its industrial development; however, it plays an important role in the State's agricultural scheme. The area is the State's leader in milk and egg production and ranks among the leaders in chickens, cattle and hops.

Much of the area is mountainous and in timber lands, but there are several excellent farming valleys, such as the Snohomish, Stillaguamish, Nooksack and Skagit River areas.

Our forests have been responsible for Washington's national leadership in the production of wood pulp, wood shingles, wood doors, lumber, plywood, poles and piling, hardboard, furniture, Christmas trees and other associated wood products.

Nearly forty percent of the total log harvest for the State in 1957 came from the ten counties bordering the Sound. Forest management practices in operation are aimed at maintaining and increasing the value of this resource.

Turning from the description of the area now to the water uses in the area:

DOMESTIC WATER SUPPLIES -- Domestic water supplies are of both the surface and sub-surface types and treatment ranges from disinfection only to full chemical treatment. Within the area, the daily domestic demand is about one hundred and twenty-eight million gallons per day. This supply serves a total connected population of approximately one million six hundred thousand persons.

INDUSTRIAL WATER SUPPLIES -- The Puget Sound area is the most heavily industrialized area in the State. The Seattle-Tacoma area alone contains slightly more than half of the State's total employment. Industrial water requirements in this area range from a low of one hundred gallons per day for some of the smaller users to a high in excess of eighty million gallons per day for the largest single user. The total water requirements by industry in the area exceeds six hundred million gallons per day. The pulp and paper industry uses approximately one-half of this total supply or about two and one-half times the domestic needs.

RECREATION -- The Puget Sound area is subject to a wide variety of recreational uses, both of the organized and the unorganized or informal types. The State Parks and Recreation Commission estimates a total attendance of nearly five million persons at State Parks within this area during

1961. This represents an increase of seven hundred thousand persons over the year 1960. In addition, there are numerous municipal and county parks, privately-owned forest recreation areas, privately-owned resort areas and national parks and forests within this area for which there are no attendance figures available.

The State Department of Commerce and Economic Development has estimated that during 1961, there were approximately six and a half million non-resident tourists in the State who spent about two hundred and fifty million dollars. They further estimate that an additional six million in-state tourists spent two hundred million dollars.

SWIMMING -- The Puget Sound area is dotted with many lakes which afford excellent swimming opportunities, both organized and unorganized. The river systems also afford good swimming.

Salt water areas are utilized to a lesser extent than the fresh water areas for swimming, but with the continuing rise in the popularity of skin diving, scuba diving, water skiing, the opportunity for water contact sports in salt water have also greatly increased.

BOATING -- This area, with its many sheltered harbors, navigable rivers, abundance of lakes, has been rightfully termed "the small boat capital of the world".

The U. S. Coast Guard licenses all boats over twelve feet in length and with over ten horsepower. Based on incomplete statewide license figures for 1961, they estimate the total number of boats in this category exceeds sixty-two thousand. They further indicate that a conservative estimate of these boats using the waters of Puget Sound would be about forty thousand. The above figures do not indicate the total usage since they only reflect boats in excess of the stated size. Although no figures are available for the smaller craft, their number would be substantial.

To further stress the importance of Puget Sound to boating activities, according to the National Association of Engines and Boat Manufacturers in the publication "Boating 1960", seventeen thousand five hundred outboard motors were sold in the State in 1960. This was the eighth largest number of sales in the fifty states and the Seattle metropolitan area ranked ninth in sales among the leading metropolitan markets of the Nation.

SPORTS FISHING -- The opportunities for sports fishing in the Puget Sound area are abundant, with both fresh and salt water species available to the fisherman. During 1960 in this area, there were a hundred and seventy-eight thousand licensed anglers, with an estimated additional hundred thousand juveniles, veterans and other anglers not requiring licenses in the State. Non-resident fishing licenses accounted for fifteen thousand of the above total. It is estimated that each fisherman spends a hundred and sixteen dollars annually. On this basis, sports fishing in this area alone accounts for twenty-one million dollars annually to the economy of the State from licensed fishermen only.

These figures do not indicate the extensive salt water sports fishing which exists in this area since no sports license is required for the taking of food fish by hook and line.

COMMERCIAL FISHERIES -- According to the license division of the State Fisheries Department, a total of seventy-six hundred and thirty-one licenses were issued in 1961 for the various purposes of fishing engaged in on the Puget Sound area. This figure includes licenses for purse seine boats and gear combined, licenses for all kinds of inside fishing, including shellfish and personal licenses for crew members.

Commercial fisheries in the Puget Sound area produced in 1960, a total of eighty-eight million pounds of fish and shellfish, worth eleven and a half million dollars at the fishermen's level and in excess of thirty million dollars at the retail level. Nationally, Washington ranked fourteenth in total poundage and ninth in total value during 1960.

SHIPPING -- The Puget Sound area is the trading and distribution center for a large part of Washington and is a major terminal for water-borne commerce to the Orient and

Alaska. During the year 1960, the total tonnage for foreign imports and exports, coastwise receipts and shipments, intraport receipts and shipments and local receipts and shipments was thirty-six million tons. And this figure excludes military cargo carried on military bottoms.

IRRIGATION -- Irrigation is a minor use of water in this area. The major irrigation activities are carried on in Skagit Valley, Nooksack Valley and Sequim areas. This water is used principally to irrigate vegetable produce.

POWER PRODUCTION -- There are eighteen hydroelectric power generating stations within the Puget Sound area. During the year 1960, these plants produced a total of approximately five billion kilowatt hours.

This concludes this section of the presentation.

CHAIRMAN STEIN: Any questions?

MR. BERGERSON: Do you have any questions? (No response) Thank you, Chuck. The next presentation will be on the Sources and Effects of Pollution -- will be given by Mr. George Hansen.

PRESENTATION BY MR. GEORGE HANSEN

MR. HANSEN: This presentation will consider the various type effects, due to several sources of pollution, including bacterial, organic, chemical, oil, inert sediment, nutrients, temperature and radioactivity.

The effects of bacterial pollution are reflected in the waterborne disease rate and hazard to the populace, domestic animals and wildlife. These effects may be direct through ingestion and body contact or indirect through various intermediate hosts and/or the food chain.

The contamination of domestic water supplies results in an immediate effect which can be of epidemic proportion. Of importance to human health are typhoid and paratyphoid fevers, dysentery, cholera, diarrhea and hepatitis, among others. Of serious paradoxical concern is that low incidence rates tend to lower the natural immunity and due to expanded travel, a more susceptible populace is thusly confronted with an increasing number of carriers.

Contaminated recreational areas are able to impart various dermal disorders, such as swimmer's itch and fungi. They also represent hazards due to parasites which attach to or burrow into the skin, such as blood flukes, leaches, whipworms and hookworms.

Shellfish growing areas are particularly critical in regard to bacterial pollution. Not only do several species accumulate bacteria within their edible portion, but oysters especially are often eaten raw.

Of importance to livestock, the most noteworthy infections are anthrax, leptospirosis, liver flukes and other bacterial diseases which are transmitted by water.

Regarding wildlife, ducks and other water fowl are subject to botulism from grossly polluted waters, while the big game may contract liver flukes and even cholera.

The above pollutional effects are manifested in some lowland waters, thereby limiting their potential for water supply and recreation and in some cases, prohibiting shellfish harvest.

Inadequate collection and/or treatment of municipal drainage constitutes the major source of bacterial pollution. While the discharge of raw sewage from unintercepted sanitary sewers is rapidly nearing total correction, the discharge of storm flow mixtures from combined sewers remains a significant factor. Individual septic tank drainfield failures and bypassing or direct discharge to surface waters, exist in troublesome proportion in some suburbs and areas of densely populated irrigated agriculture.

Shipping and pleasure boating are signficant sources of bacterial pollution in areas where these activities are concentrated.

Feed lots for holding or fattening cattle prior to slaughter, which border or drain into surface waters, are sources of bacterial pollution which not only interfere with the conduct of a sanitary survey and evaluation of the results, but are also implicated in the transmission of livestock diseases.

Other sources of bacterial contamination are a general land drainage and isolated industries or Governmental institutions having inadequate sanitary waste treatment facilities.

The pollutional effects of organic materials subject to decomposition are principally manifested in lower dissolved oxygen levels, but produce side effects on other environmental parameters, which when altered to an extreme degree, promote the multiplication of undesirable organisms of both pathogenic and nuisance nature.

Organic deposits in receiving water smother the habitat of desirable organisms and release undesirable by-products of decomposition. In the extreme case, they are subject to gaseous eruptions, resulting in a surface accumulation of decomposing matter and resuspension of materials, producing not only turbid conditions within the watercourse, but by exposing a greatly expanded surface area, have a significant impact on both dissolved oxygen and reaction. The evolution of obnoxious gases and floating and resuspended matter results in the creation of an aesthetic nuisance. Depressed oxygen concentrations progressively and adversely affect desirable species of fish, first by reducing their vitality to the point where they become susceptible to predators and finally to actual mortality. The above effects apply in various degrees to both salt and fresh-water areas.

Sources of organic pollutants are biologically unstable municipal or industrial wastes and to some extent, natural debris from watershed runoff and the decay of aquatic weeds. Organic industrial wastes are characterized by both magnitude and concentration, particularly in the food and fiber industries. They are therefore the principal type sources of organic pollution. Of special interest to organic pollution are wastes from the forest products industries, such as pulping liquors, fiber, bark and sawdust. The second major source of organic pollutants are food processing industries, including canneries, slaughterhouses, dairies and fermentation types.

The primary effects of chemical pollution and those of greatest concern are direct toxicity, both to humans and domestic animals and to the aquatic life in the affected receiving water. Especially serious are the highly toxic materials used in agricultural pesticide and weedicide applications which are not sufficiently specific in their effect to avoid the undesirable side effects. In addition to toxicity, chemical discharges may result in making the water unpalatable for consumption due to tastes or odors, particularly in regard to phenolic compounds. Chemical oxygen demand may be involved in the case of strong reducing compounds discharged to the waterway, resulting in a depletion or decrease of dissolved oxygen. Among other possible effects are changes in reaction and salinity which alter the aquatic environment, making it unihabitable to desirable organisms. Electro-physical effects may be manifested in the enhancement of galvanic corrosion.

Sources of chemical pollution are the previously mentioned agricultural toxicants reaching the water through land runnoff or drift, pulp mills through the discharge of large quantities of cooking liquors, refineries and wastes from chemical manufacturing.

The pollutional effects of oil are both physical and biological in nature. Physically, they are undesirable aesthetically, a nuisance to pleasure boating and are intolerable to water sports recreation. Oil reduces the capacity of the receiving water to assimilate other wastes through the prevention of aeration and light penetration and is generally inconsistent with any other water use. Heavy oils on the surface, particularly in waterfowl feeding grounds, has incapacitated birds to the point of their drowning or falling victim to predation.

Biologically, oil-water emulsions asphyxiate fish by coating their gills. Secondary biological effects result from the coating and subsequent kill of shore vegetation, the decay of which imparts an organic loading on the adjacent waters. The loss of stream bank vegetation promotes erosion and consequent turbidity.

The most serious sources of oil pollution involve bilge and ballast pumping from inbound ocean-going vessels, barge rupture during transport and human error during refining, storage and delivery to the customers. Improperly operated or inadequate oil-water separation or collection facilities at refineries, shipyards, roundhouses and garages and service stations add to the problem. Miscellaneous sources of oil pollution include storage tank leakage, natural seeps and vehicle collision. Regarding the latter, particularly in urban areas, recourse is often made to the expediency of flushing spilled oil from the street into the sewer.

Pollutional effects from inert or mineral sediment type pollutants find their most critical effect in the covering of spawning beds required for the propagation of game fish and on the bottom fish food organisms. Another biological consideration is the turbidity imparted to the water which reduces sunlight penetration and increases solar heat absorption, the latter factor resulting in increased temperatures of the receiving water. In addition to these are physical effects of the gradual filling of reservoirs and the extreme cases resulting in turbine runner or pump impeller erosion and shoaling in navigable streams and estuaries. Secondary effects of deposited sediment occur in marshland build-up by silt, in which subsequent vegetation may harbor mosquitos and during the seasonal decay of foliage, adds to the organic loading on the adjacent water.

Sources of inert or mineral sediment pollutants are erosion through land clearing or agricultural activities, gravel operations, ore product processing or classification in the mining industry. In the food industry large quantities of silt result from the processing of root crops, such as sugar beets and potatoes.

NUTRIENTS -- Pollution in the form of mineral nutrients finds its effect in the enhancement of biological activity within the receiving waters, causing an imbalance in the aquatic regimen and unproportionate enhancement of aquatic weeds, moss, phytoplankton and slimes. Noteworthy in this regard are algal blooms which render the water unfit for recreation, become an aesthetic nuisance, impart tastes and odors to domestic supplies, and in the extreme case, due to their nocturnal respiration, depress dissolved oxygen during the darkness hours and cause wide diurnal variations in pH and alkalinity. The decay of dead algae, deposited on shore by wave action, can result in an extreme nuisance with obnoxious odors. When the algae bloom is prolific, the resultant dissolved oxygen depression during the subsequent decay may be sufficient for a complete kill of the fish population.

Important among the slimes supported by excessive nutrients are the fouling organisms, particularly sphaerotilus which becomes enmeshed in fishing nets, physically plugs the pumps and nozzles of sprinkler irrigation systems and smothers desirable bottom organisms in the smaller streams.

Sources of nutrient pollution are agricultural land drainage, containing soluble fertilizers and municipal sewage, notably for its phosphate content. Spent pulping liquors and effluents from the food processing industries having inadequate waste treatment facilities, serve as a carbohydrate supply for the sphaerotilus organism.

TEMPERATURE -- Thermal pollutants are important in their effect on the cold-water game fish affecting their reproduction, susceptibility to predation, and disease, the latter being noteworthy in its connection with columnaris in the anadromous species. High temperatures decrease the palatability of domestic water supplies and decrease its usefulness in industrial coolant applications.

Industrial sources of heat or thermal pollution stem from the heat contained in processing wastes and that due to cooling of equipment or product. Other sources of thermal pollution include irrigation return flows, which have absorbed heat by solar energy during their physical phase of low volume to surface ratio and by contact with the soil.

Radiological pollution effects are manifested in the chronic health and the reproductive cycle of man and higher animals. The sources of this pollutant are nuclide production and processing, ore mining and processing, and fallout from weapons testing.

This concludes my portion.

MR. BERGERSON: Are there any questions from the conferees?

CHAIRMAN STEIN: Mr. Hansen, on page 16, I think you mentioned "Governmental institutions having inadequate sanitary waste treatment facilities" -- I don't know whether your appendix covers this or you intend to cover this later; but we would be interested in knowing if there are any Federal institutions you consider in that category in this area? If you don't have that now, we would be most interested in having a list of those you consider so, because under the new law, we specifically are to cover Federal institutions at this stage of the proceeding.

MR. HANSEN: Details will be supplied you. Other than that, I wouldn't add to it now.

CHAIRMAN STEIN: Thank you. Are there any other questions?

MR. DWORSKY: I just want to be clear here -- will the Commission supply for the record the list of Federal installations then, Mr. Bergerson?

MR. BERGERSON: We can do that, yes. Thank you, George.

CHAIRMAN STEIN: May we have your attention, please? I think in view of the large group here and the luncheon situation, it has been suggested that we recess for lunch and we will reconvene promptly at 1:30. We stand recessed until 1:30.

(Whereupon, at 11:40 o'clock a.m., a recess was taken until 1:30 o'clock p.m., at which time the conference reconvened.)

AFTERNOON SESSION

CHAIRMAN STEIN: May we reconvene? Mr. Bergerson, would you continue?

MR. BERGERSON: Thank you, Murray. There was one announcement I would like to make before we get underway. I don't believe everybody has registered that is in attendance here and I would say that if you register, you will be on the mailing list to receive a copy of the proceedings of this conference; so I think it behooves you, because of your interest, to get registered -- get on our registration list.

And also, I would like to say that we are compiling a list of those desiring to make statements. I think we have most of them, but if there are any of you that have not checked with Mr. Neale, I would ask that you do so before we get to the last item on the program.

CHAIRMAN STEIN: Let me just state this again -- that is, the transcripts, in addition to the summary, will be available. Now, given the restrictions that we have in the Government on Government printing, the transcripts generally take a little while to get out. If anyone feels that they would like a transcript immediately, you can of course make arrangements with the Reporter and these will be your own arrangements with the Reporter as to the transcript. The transcript is a public document and we have no objection to that coming out as soon as the Reporter has completed it.

Mr. Bergerson?

MR. BERGERSON: Thank you, Murray. We will now proceed with the staff presentation by the Pollution Control Commission. We'll now take up the subject of the status of municipal and industrial pollution. This will be presented by Mr. Lyman Neilsen.

PRESENTATION BY MR. LYMAN NEILSEN

MR. NEILSEN: During the nearly six years of working under Chapter 71, the Laws of 1955, the staff of the Commission has contacted and issued waste disposal permits to five hundred and thirty-two industrial plants located in the Puget Sound drainage basin, which is shown on this map that has been prepared. Many of these were originally issued temporary permits which required corrective measures to be instituted before a permanent waste disposal permit would be issued.

This report, which is now being presented, of the status of the waste treatment and pollution prevention of state waters includes that which has been done by all industries, pulp and paper mills, milk processors, canning and freezing of fruits and vegetables, meat packing, oil and chemical refining and manufacture, lumber and plywood, gravel and other industries with significant industrial wastes, as well as the status of the municipal sewerage program.

The natural drainage from land masses into the Puget Sound and the Strait of Juan de Fuca is divided into seventeen drainage basins.

The following summaries takes each of these seventeen natural drainage basins as individual basins.

In Drainage Basin Number 1, which comprises an area drained by several small creeks in the Bellingham-Blaine vicinity, there are three milk-producing plants, there is one vegetable cannery, nine mills producing plywood and lumber, seven meat-processing and rendering plants, one gravel plant, ten seafood processing plants, one cement plant and three pulp and paper mills.

All of the industries of this basin have complied with the requirements of this Commission and obtained waste disposal permits with the exception of the pulp and paper industry.

There are two cities within the drainage basin with an approximate sewered population of thirty-seven thousand six hundred. Sewage from ninety percent of this population is treated in one sewage treatment plant and in addition is being planned to take care of the other ten percent.

Drainage Basin 2 includes the area drained by the Nooksack River and its tributaries. Within this basin are one gravel plant, four meat-packing and rendering plants, five fruit and vegetable processors, one oil refinery and two milk-processing plants. All of these industries are operating under permanent permits with the exception of one packing house, one vegetable freezing plant and one milk-processing plant. Work is progressing at each of these plants at the present time and it is expected that they will be in compliance and qualify for permanent waste-disposal permits within the year.

Within this drainage basin are five municipalities with an approximate population of five thousand three hundred. Of this, about four thousand people are served by sewers and have sewage treatment.

Drainage Basin 3 comprises the area of the San Juan Islands, Fidalgo, Whidbey and Camano Islands. In this drainage basin are three milk-processing plants, two oil refineries, two chemical manufacturing plants, three mills producing plywood and shingles, four meat-packing and rendering plants, one gravel plant, one pulp mill and nine fish-packing plants. All of these industries, with the exception of the one pulp mill, have complied with the requirements and obtained permanent waste-disposal permits.

Also within this basin, there is a sewered population of thirteen thousand people living in six communities. Thirty-five percent of this population has adequate treatment in two sewage treatment plants. Four plants are being planned at the present time, which will serve sixty percent of the population of the basin and two additional plants will be needed to serve the remaining five percent.

Drainage Basin 4 is the area drained by the Skagit River and its tributaries. Within the basin are four milk-processing plants, one foundry, seven fruit and vegetable frozen foods plants, two mills producing plywood and lumber, six meat-processing plants, three gravel plants and one cement plant. All of these plants have complied with the requirements of this Commission for prevention of water pollution and obtained permanent waste-disposal permits.

There are five municipalities within the basin, having a total population of twelve thousand people; and a sewered population of ten thousand five hundred. Ninety-seven percent of the sewered population has adequate treatment. One additional plant is needed to take care of the other three percent.

Drainage Basin 5 comprises the area draining to Puget Sound by means of the Stillaguamish River and its tributaries. Industry in the area includes one milk-processing plant, two plants preparing fruits and vegetables for freezing, three small slaughter houses, two sand and gravel plants and one mining operation. Only the mining operation is under temporary permit. This is a new company which began operations in 1961, a temporary permit being issued to the company that we might have a chance to observe their operations and give them a chance to establish a history of compliance with the requirements of the Commission. It is expected that a permanent permit will be issued to this firm by June of 1962.

There are three towns within the basin, having a total population of thirty-four hundred people, approximately twenty-three hundred of which is sewered, with two thousand or eighty-seven percent served by adequate sewage treatment. One additional plant is being constructed to serve the remaining sewered and a part of that area which is presently unsewered.

Drainage Basin 6 includes several small streams which discharges into Port Gardner Bay and Possession Sound. It does not include the Snohomish River basin. Industry in this area includes two milk-processing plants, nine plants which have an oil or chemical waste, six mills producing lumber and plywood products, four gravel plants, four pulp and paper mills and two fish-processing plants. Of these twenty-seven plants, only the four pulp and paper mills are operating without permanent permits.

There are three cities within this basin, with a total population of forty-nine thousand of which forty-four thousand five hundred are served by sewers with approximately forty-three thousand serviced by two sewage treatment plants. Sewage from one city and a sewer district, having a combined population of about nine thousand, is transported from Basin Number 8 for treatment within Basin 6. There is one treatment plant under construction that will serve an unsewered population of twelve thousand people and there are two plants being designed that should be under construction within the next six months that will treat sewage from an unsewered population of eight thousand and a sewered population of five hundred.

Drainage Basin 7 includes the area drained by the Snohomish River and its tributaries. There are thirty-eight industrial plants located in this area, of which two process milk, nine process fruits and vegetables, nine are lumber or plywood mills, ten process poultry or meat products, three are mining or sand and gravel plants, two are pulp and paper mills, three are miscellaneous industries of other types, having a waste effluent discharging to state waters. One poultry processing plant and the two pulp and paper mills are operating under the terms of temporary permits. The other thirty-five plants are in compliance with the requirements of the Pollution Control Commission. It is expected that the poultry plant will be eligible for a permanent permit before the end of this year.

There are thirteen incorporated communities and two sewer districts in this basin. Five of the towns and the two districts do not have sewers and this accounts for the majority of the thirty-seven hundred unsewered population. Ninety-eight hundred people are served by five sewage treatment plants.

There is an approximate population of six hundred and seventy or four percent of the sewered population that need treatment facilities and this facility is presently in the planning stage.

I have lumped Drainage Basins 8, 9 and 10 together, because this area incorporates largely the metropolitan Seattle area. It comprises the area drained by Lake Washington Ship Canal, the Cedar River and its tributaries, the Duwamish River and its tributaries and numerous small creeks which empty directly into Puget Sound and Elliott Bay in the Seattle metropolitan area. There are a hundred and eighty-eight industrial plants located in these three drainage basins of which sixteen process milk, fifty-nine are plants having oil or chemical wastes, fifteen process fruits and vegetables, eleven produce lumber or plywood, twenty-four are meat and poultry packing or rendering plants, twenty-three are sand and gravel plants or allied industry, seventeen process fish, twenty-three are miscellaneous industries having a significant waste.

Of the hundred and eighty-eight plants in these three drainage basins, eighteen are operating under the terms of temporary waste-disposal permits. Fourteen of these will have completed correction facilities and be eligible for permanent waste-disposal permits by June the 30th, 1962 and the remaining four within one year.

The majority of the cities and towns and sewer districts within these basins are located within the boundaries of the Municipality of Metropolitan Seattle and will be discussed with the Metro problem.

Drainage Basin 11 includes the area drained by the Puyallup River and its tributaries. In the area are three milk-processing plants, six fruit and vegetable-processing plants, five plants having chemical wastes, three mills producing lumber or plywood, eight meat, poultry and rendering establishments, five sand and gravel plants, four pulp and paper mills and four plants classified as miscellaneous industries. Temporary permits are held by a berry-processing plant and a small slaughter house, both of which are expected to have completed their facilities and be eligible for permanent permits prior to June of this year.

There are three municipalities and one sewer district within Basin 11 with a total population of thirty-one thousand. Of this, twenty thousand six hundred have sewers. Sewage treatment is provided at six municipal plants that serve twenty thousand six hundred people, all but fifty that are sewered. There is a need in five communities for sewers and sewage treatment to provide service for approximately sixty-eight hundred people. Sewers and sewage treatment is in the planning stage in two communities and facilities should be constructed within two years to serve an additional fifteen hundred.

Drainage Basin 12 includes a land mass which is drained directly to the Puget Sound and Commencement Bay by a number of small creeks. There is a total of fifty-five industrial plants located in this area, six milk plants, twenty-four plants having oil or chemical wastes, one fruit and vegetable processor, seven sawmills, four poultry, meat and rendering plants, three sand and gravel plants, one pulp mill, two fish processors and seven other plants having significant wastes. There is a total of four plants operating under temporary permits. All are constructing facilities to prevent pollution. Such facilities should be completed within six months after which all of the industry in this drainage basin will be qualified for permanent waste-disposal permits.

There are six municipalities and one sewer district within Basin 12. The sewered population is one hundred and thirty thousand, which is eighty-four percent of the total population. Sewage treatment is provided at two treatment plants for fifty thousand five hundred people. One plant is under construction, which will provide treatment for twenty-five thousand persons and an existing plant will be expanded within the next year to treat sewage from an additional fifty thousand population.

Drainage Basin 13 includes the area drained by the Nisqually River and its tributaries. There are only eight plants in the area, all of which are operating in compliance with the requirements of this Commission.

There are three towns within Basin 13 with a total population of sixteen hundred and fifty. Of these communities -- one of these communities has an approximate sewered population of three hundred and is planning to provide treatment within one year for this portion of town. There is no existing need for sewers or treatment in the remaining two towns.

Drainage Basin 14 includes all the drainage into the southern area of Puget Sound, including Carr and Case Inlets. There are forty-five plants under permit by the Commission in this area, all of which are permanent permits. The industry of the area consists of thirteen mills producing lumber, two slaugher houses, twenty-one fish and oyster-processing plants, three sand and gravel plants, two pulp and board mills and four brewers of beer and wine.

Within this basin, there are four incorporated municipalities with a total population of twenty-seven thousand eight hundred. The sewered population is approximately twenty-six thousand one hundred and sewage treatment is provided at two plants serving one hundred percent of the sewered population.

Drainage Basin 15 includes drainage to the Puget Sound from the Olympic Peninsula from a point near Vashon Island on the south to Point No Point on the north. Twelve companies operate in this area under permanent permits.

There are four municipalities and three sewer districts within Basin 15 with a total population of thirty-three thousand eight hundred. There are six treatment plants serving three of the cities and two of the districts with a population of twenty-nine thousand eight hundred or ninety-three percent of the total sewered population of thirty-two thousand four hundred. Final plans are being prepared for the construction of a plant to serve an additional twenty-four hundred people of the existing sewered population. This plant should be in operation within one year. A second community is planning to connect to an existing plant. This will provide treatment for an additional five hundred of the sewered population.

Drainage Basin 16 includes that area of the Olympic Peninsula draining to Hoods Canal. There is only one sawmill, two gravel plants and two oyster-packing plants in the basin, all of which are operating under permanent waste disposal permits. There are no incorporated municipalities or sewered districts within this basin.

Drainage Basin 17 includes that portion of the Olympic Peninsula which drains into the Strait of Juan de Fuca. There are two milk plants, one plywood plant, two oyster and fish-packing plants and five pulp and paper mills in the area. All of the industries, excepting three of the pulp mills, have complied with the requirements of the Commission and have permanent waste-disposal permits.

There are three communities and one sewered district within the basin, with a total population of nineteen thousand eight hundred. The sewered population is approximately seventeen thousand five hundred, none of which receives sewage treatment.

On a percentage basis, there have been five hundred and thirty-two permits issued in these seventeen drainage basins, forty-nine of which is to the milk industry, one of which is a temporary permit, forty-eight permanent permits for a compliance with Commission requirements of ninety-eight percent for the milk-processing industry.

Industries which have oil and chemical wastes, there were a hundred and seven permits have been issued; seven still have temporary permits; a hundred and four have complied with all requirements for a compliance percentage of ninety-five percent for the industry.

The fruit and vegetable industry with forty-seven plants has ninety-six percent compliance, having two permits which yet are temporary.

The lumber industry with sixty-nine mills in the area, have a compliance of ninety-eight percent with the requirements of the Commission, having one mill which yet has a temporary permit.

In the meat, poultry and rendering industries, there are seventy-three mills, six temporary permits for a total compliance of ninety-two percent in the industry.

In the sand and gravel industry, there are fifty-six plants total, four of them have temporary permits; ninety-three percent have complied with the requirements of the Commission.

In the fish-processing industry, sixty-six plants; sixty-six have complied for a total of one hundred percent compliance.

The pulp and paper industry have twenty-two plants in the area, thirteen under temporary permits for a compliance of forty-one percent with the requirements of the Commission.

Miscellaneous industries -- those classified in this division, there are forty-three plants of which eighty-four percent have complied with the requirements of the Commission and have permanent permits at this time.

CHAIRMAN STEIN: Thank you, Mr. Neilsen. You shortened part of your presentation from the written record for reason of reading. If you don't object, I think it might be preferable if your complete tables and figures showed. This will not change the context.

MR. NEILSEN: It won't change the context at all.

CHAIRMAN STEIN: Right. But that will appear as read -- as it appears in here.

(Whereupon, the table referred to is herewith copied into the record by direction of the Chairman as follows:

INDUSTRIAL STATUS
PUGET SOUND DRAINAGE BASINS

IND. OR TYPE OF WASTE	NO. OF PLANTS	TEMP. PER.	PER. PER.	% COMPLIANCE
MILK	49	1	48	98
OIL & CHEMICAL	107	7	102	95
FRUIT & VEG.	47	2	45	96
LUMBER	69	1	68	98
MEAT, POULTRY & REND.	73	6	67	92
SAND, GRAVEL & ALLIED IND.	56	4	52	93
FISH PROCESSING	66	0	66	100
PULP & PAPER	22	13	9	41
MISC.	43	7	36	84
TOTAL	532	41	496	93 Av.)

CHAIRMAN STEIN: Are there any questions, Mr. Dworsky?

MR. DWORSKY: No, no questions, thank you.

CHAIRMAN STEIN: Mr. Quigley?

MR. QUIGLEY: No questions.

MR. BERGERSON: Thank you, Mr. Neilsen. The concluding speaker in the Pollution Control Commission's presentation will be Mr. James Behlke, who will discuss major problem areas and also will summarize the presentation which has been made.

Mr. Behlke.

PRESENTATION BY MR. JAMES BEHLKE

MR. BEHLKE: MAJOR PROBLEM AREAS -- LAKE WASHINGTON POLICY AND METRO -- In recent years, it became apparent that effluent from sewage treatment plants serving the expanding population living within the area draining into Lake Washington, were causing an enrichment problem in the lake and supporting excessive algal growths within the lake. In order to retard the eutrophication of the lake and preserve its value, the Commission adopted the policy that additional sewage treatment plant effluents could not be discharged into the lake and that plants should be instructed for removing existing effluents from Lake Washington.

Successful accomplishment of the ultimate goal has been obtained by the formation of the metropolitan Municipality of Seattle and bond issues have been sold for financing the needed facilities.

Preliminary engineering has been completed, a time schedule set, final plans prepared, and construction of facilities is proceeding ahead of schedule on the one hundred and twenty million first stage program to be completed before the end of 1970. The Lake Washington trunk line should be completed prior to 1965 and thus remove the large portion of the sewage effluent now discharging into Lake Washington.

Within the drainage area of King County, there are twenty-nine incorporated cities and towns having a total population of six hundred and fifty-nine thousand. Of these, twelve thousand live in nine communities which do not have sewage systems and rely upon septic tanks and drainfield systems for sewage disposal. Of the six hundred and forty-seven thousand sewered population in incorporated areas, sewage treatment plants serve two hundred and twelve thousand; however, only about a hundred and sixty-eight thousand are sewered by adequate -- served by adequate sewage treatment plants because treatment plant effluents are discharged to the lake contrary to the Lake Washington policy.

In addition to the people living in incorporated areas, there are two hundred and four thousand people living in the urban area adjacent to but not included in the incorporated communities. Of these, ninety-one thousand are served by sewer districts. Treatment is provided by thirteen of these sewer districts for a total of seventy-four thousand five hundred persons. Most of these are within the Lake Washington drainage area and thus require completion of the Metro's Lake Washington trunk for ultimate disposal of the treatment plant effluent.

Construction is progressing satisfactorily toward the accomplishment of this goal.

PULP AND PAPER MILLS PROBLEM -- Prior to the formation of the Commission, waste discharge from pulp and paper mills were recognized as the largest contribution to the pollution of the State's water. Area wide investigation near mills were conducted on the Columbia River, in Grays Harbor, in Port Gardner Bay and elsewhere. There have been many re-investigations and continuing studies are presently being carried out in some areas.

There have been numerous improvements and measures taken to prevent and control pollution. During this time, members of the pulp and paper industry committed themselves to individual as well as cooperative research and investigation in order to develop methods for recovery and utilization of sulphite waste liquor solids.

The pulp mills' research program was established at the University of Washington in January, 1944, as a result of a series of conferences among representatives of the pulp and paper industry, the Governor, and other representatives of the State. The project was to be concerned with more complete utilization of forest growth and with stream improvement.

Primary emphasis was to be placed on studies of waste materials.

Present support of this program comes from seventeen members of the pulp and paper industry. To date, the cumulative total expenditures are about six hundred thousand dollars or only two thousand per mill.

As yet, physical application of this research has not resulted in any major waste abatement in the Puget Sound area.

Reduction in the pollutional characteristics and effects of these effluents have been accomplished by save-alls, by-product utilization and sulphur dioxide stripping.

The mills that are concerned in this problem are the Anacortes Mill of the Scott Paper Company. This industry is about a hundred and twenty ton sulphite mill, which discharges approximately eight point seven million gallons a day. In this discharge, there is approximately three hundred and fifty thousand pounds per day of total solids, dry weight. This means that you could truck it away. Also, eleven thousand seven hundred pounds of this three hundred and fifty thousand pounds is in the form of fibers. This is a population equivalent of approximately four hundred and eighty thousand people.

In the area adjacent to the mill, we found over oyster beds, sulphite waste liquor concentrations as high as seventy-three parts per million, and forty-five parts per million, respectively. No widespread DO problem exists in this area.

In Bellingham Bay area, the Puget Sound Pulp and Timber Company has a pulp mill that discharges into Bellingham Harbor and Bellingham Bay. This is a mill that has a capacity of approximately five hundred tons a day, using forty-five million gallons, of which they discharge in waste, approximately a million one hundred thousand pounds of total solids. This means again, total solids in the form of dry weight. Fibers, as suspended combustible solids, average around thirty thousand pounds per day. This mill contributes a BOD equivalent of approximately a million people.

Sulphite waste liquor concentrations in the area adjacent to the mill run as high as forty-five hundred parts per million. DO's go down to zero.

Surface waters in this area are degradated to a greater extent than the bottom waters. Areas within five to six thousand feet of the mill are grossly degradated.

The mill is supplied by their water by the City of Bellingham, which has just recently tapped one of the forks of the Nooksack River to furnish this water.

The next area where we have mills is in the Port Angeles area; we have three mills in this area -- Crown-Zellerbach, Fibreboard and Rayonier. Waters of the area -- sampling of waters of the area have found as high as seventeen thousand parts per million of sulphite waste liquor and dissolved oxygen conditions as low as zero. These are in areas adjacent to the mill where there are high fiber content on the bottom, sludge beds, and slug discharges of the sulphite waste liquor are observed.

The Fibreboard Products' mill has a total tonnage of approximately a hundred tons. Of this, thirty some tons is ground wood and sixty-five tons is sulphite. They have a flow of approximately five point two million gallons a day and a discharge of total solids of approximately nine hundred thousand pounds a day -- excuse me -- ninety thousand pounds a day. Fiber contributes to approximately six thousand pounds per day. This is a population equivalent being discharged of approximately two hundred and sixty thousand people.

Rayonier, Incorporated, located on the shores of Port Angeles Harbor, discharge approximately thirty-five million gallons a day to the harbor, contributing one million six hundred thousand pounds per day, of which twenty-six thousand pounds per day is fiber. This is equivalent to approximately one million five hundred thousand people. This is a three hundred and eighty ton sulphite mill.

Crown-Zellerbach, who discharges to this area, is a five hundred ton mill -- approximately five hundred, four hundred tons of this being ground wood and approximately a hundred tons being sulphite.

The water source for these three industries is the

Elwha River, through a common industrial municipal pipeline.

The Everett area -- Everett-Port Gardner Bay are -- and Snohomish River, there are three mills that we have been concerned with lately, discharging into this area -- Scott Paper Company, Weyerhaeuser Company and the Simpson-Lee Paper Company. Weyerhaeuser has a three hundred and ten ton per day capacity, having a flow of approximately twenty-eight million gallons and discharging a million one hundred thousand pounds -- total pounds per day; and thirteen thousand pounds of this being fiber, with a total population equivalent of approximately one million two hundred and eighty thousand.

Simpson-Lee Paper Company has a flow of around ten million gallons per day; it's a hundred and forty-five ton mill -- kraft mill, having a total solids discharge of around two hundred thousand pounds, with suspended solids losses around thirty thousand pounds. This is a populational equivalent of around seventy-two thousand.

Scott Paper Company discharges approximately ninety million gallons a day to the bay. This is an eight hundred and seventy-five ton sulphite mill. They discharge approximately two million, five hundred thousand pounds of total solids, dry weight to the bay. Of this, approximately thirty thousand pounds is in fiber. This mill contributes approximately three million five hundred thousand population equivalent in their discharge.

This means in the Everett area, we have a population equivalent from these three mills of approximately five million five hundred thousand. This is equivalent to the total population of -- approximate total population of the City of L.A., in L.A. County.

In the inner harbor, we found dissolved oxygen conditions as low as zero and upwards to three parts per million, a mile away from the Scott and Weyerhaeuser mills. Sulphite waste liquor concentrations have been as high as eleven hundred. These are samples that we have observed.

From the Simpson mill, we've observed sludge beds along the banks and on the bottom. The inner harbor is virtually completely covered with sludge beds. We've had skin divers in these areas, going down, have not been able to see further than six inches in front of their face. They have felt the bottom by landing on it and that's the only way. They can't see the bottom.

Because of these conditions, in 1960, the Commission declared as a policy, the pulp and paper industry shall provide facilities which will fully protect all water uses from process wastes.

Based on this policy, temporary permits were issued to ten mills of the industry. Nine of these mills are presently contesting these permits.

In the Port Angeles area, we've required Crown-Zellerbach to discharge their wastes outside of the inner harbor. This requirement has also been made of Fibreboard Products and also a discharge of this waste through continuous concentration of liquor. These are basically two small sulphite mills; the third sulphite mill in the area, Rayonier, being larger, we've required recovery of the liquor and recovery of settleable solids.

In the Bellingham area, we've required Puget Sound Pulp and Timber to recover their liquor -- eighty-five percent of their liquor and to remove the settleable solids from their effluent.

In the Everett area, we've required removable of settleable solids in recovery of the two large mills, Scott and Weyerhaeuser -- of the kraft mill, we've required a removable of settleable solids.

In Anacortes, the one remaining mill, we required a uniform continuous discharge to the channel.

OTHER PROBLEM AREAS -- There are other problem areas of lesser significance, most of which are on definite correction programs, with specific time schedules established.

These areas include industrial pollution of the Nooksack River by canning and freezing operations, chemical and oil wastes from the Seattle-Tacoma Airport, chemical problems in the Hylebos Waterway in Tacoma, the City of Port Angeles, the City of Anacortes, the City of Tacoma, sanitary wastes from ships and small boats, log booming and storage areas.

SURVEY AND RESEARCH -- Continual municipal and industrial growth and change in technology as applied to industrial processes result in everchanging characteristics of waste effluents discharged to Puget Sound. In order to establish a basis for the evaluation and control of these effects of these discharges upon the surrounding water environment, the Commission needs to expand its present program of survey and research.

A program of this nature should consider all phases of water quality -- the physical, chemical and biological aspects and their interrelationships. The program should include effluent analyses, adjacent water analyses, controlled condition research and movement of water masses so that the ultimate fate of the discharged wastes can be determined. This knowledge of water movement must not be confined to the immediate waste-receiving area, but must include the entire Puget Sound water system. Also needed is a research evaluation of potential methods for treatment or recovery of various industrial wastes.

Information of this nature is needed to carry on an effective program of pollution prevention and control so that all water uses may be fully protected.

SUMMARY -- Within Puget Sound basin, virtually all water uses known demand fulfillment. The major uses are domestic and industrial water supplies, recreation, commercial and sports fishing, boating, swimming, irrigation, navigation and power production.

Recognizing the high value of these waters for the noted uses, the State of Washington has instituted a program of maintaining the highest possible standards to insure the purity of all waters consistent with the public health and public enjoyment thereof, the propagation and protection of wildlife, birds, game, fish and other aquatic life and the industrial development of the state.

Accomplishment of this goal has progressed through construction of waste-treatment facilities, both industrial and municipal.

The entrance of raw sewage to state waters, through municipal sewage systems, has been materially reduced and with the completion of presently planned facilities, discharges, with few exceptions, will be limited to sewage treatment plant effluents. Effluents which are presently discharging to Lake Washington will have been removed from the Lake for dispersal outside -- disposal outside of the Lake Washington drainage basin.

The 1955 amendment to the State's Pollution Control Act requires industries to obtain waste discharge permits, assisted greatly in obtaining correction and prevention in pollution control facilities in industry. Most industries in the Puget Sound area have either complied with the requirements outlined by the Commission or are currently on a planned schedule to provide facilities, which will prevent pollution of the state waters.

Still, as it was at the conception of the Commission, pulp mill wastes remain as the Commission's major number one problem.

CHAIRMAN STEIN: Any questions here? Mr. Behlke, as I added up your figures and I'm not the best adder in the world, the population equivalent you have from these pulp mills in the Puget Sound area -- that is, seven mills -- comes to eight million seven hundred forty thousand?

MR. BEHLKE: That is correct.

CHAIRMAN STEIN: Now, as I read another part of your report, there are only one million seven hundred fifty thousand five hundred people living in the Puget Sound area?

MR. BEHLKE: This is correct.

CHAIRMAN STEIN: In other words, we have the pulp mills practically --- (interrupted)

MR. BEHLKE: An eight to one --- (interrupted)

CHAIRMAN STEIN: As a matter of fact, it's four to one of the population in the entire state. Again, I was very interested in the chart in the preceding presentation by Mr. Neilsen and I think -- I might say, looking at your program and the country as a whole, I think you have as good an analysis of industrial waste sources as we've seen anywhere and that you have a remarkable record of compliance -- that is, an average of ninety-three percent. Again, and if you think this is a bizarre question, you don't have to answer it, but this forty-one percent compliance in pulp and paper, which is materially lower than any other classification of industry in the state, would you think that the pulp and paper wastes are any less detrimental to other uses in general than the other wastes from these other industries? Or would you say it's about the same?

MR. BEHLKE: I think that again -- it's difficult to pull all of these industries into one category and say that "this is dangerous compared to this one". I do think that in most cases, this is true, that pulp and paper wastes are just as damaging as quite a number of other wastes.

CHAIRMAN STEIN: I don't know whether you care to say now or perhaps later, because I think Mr. Dworsky may have some questions, but to what do you attribute the fact that you've gotten such a high degree of compliance from other industries, ninety-three percent and only forty-one percent from pulp and paper?

MR. BEHLKE: I think this can mainly be attributed to our industrial waste permit system and a continuous contact with industry and continual inspection of the industries.

CHAIRMAN STEIN: Would you think that if you had the average compliance, up to ninety-three percent from the pulp and paper industry as you have in other industries, that the waters in the Puget Sound area would be of better quality?

MR. BEHLKE: Definitely. This goes without saying that considerable reduction of waste discharge would be made through compliance by the mills.

CHAIRMAN STEIN: I have no further questions.

MR. DWORSKY: I'd like to add my congratulations to the State of Washington, its Pollution Control Commission and the manner in which they have administered the program as indicate in their table on page 30. I think that anybody that reviewed the progress with respect to industrial pollution abatement in the country would have to rank this, with the exception of those points that Mr. Stein made, as being one of the really outstanding achievements in terms of industrial waste control. It's a most impressive table. I have a number of questions, Mr. Behlke. On page 31, I would like to have you make reference to the total cost of the Seattle metropolitan program. Do you have that cost?

MR. BEHLKE: I believe Mr. Miller is here and will make a further statement on it. We quoted the first stage ten-year program as one million twenty -- excuse me -- one hundred and twenty-five million dollars. An example of this, this next year, they plan on spending something in the neighborhood of twenty million dollars in construction for just one single year.

MR. DWORSKY: These bonds have already been sold?

MR. BEHLKE: Yes. This program -- this first stage, ten-year program is financed.

MR. DWORSKY: I see that. The point that I raise was with respect to the total cost of the program, which apparently is not --- (interrupted)

MR. BEHLKE: I think ultimately it's a three hundred and fifty million dollar program. This is pulling the figure out of the top of my head.

MR. DWORSKY: Fine. I wanted to get something more of that figure in the record. You made reference to the matter of expenditure for research by the mills, on page 33, and just to add to your statement, there was two thousand dollars per mill per year?

MR. BEHLKE: Yes -- two thousand. I may have left out the "per year" -- if I did, I apologize.

MR. DWORSKY: From Mr. Neale's statement earlier in the course of this report by the State of Washington Pollution Control Commission, there was a brief outline made of the course of the State's program since 1938. However, nothing was entered into the record with respect to what I expect exists, and that is the long history of the State's actions with respect to industries that have not yet complied, and perhaps with particular reference to these seven mills -- seven pulp and paper mills in the Puget Sound area. I wonder if you could either give us now -- and I would doubt that you could, but if you can't give it to us now, could you have it entered into the record, the history of the delays that have occurred at each of these pulp and paper mill locations? What I am asking for is simply a record of the contacts, the --- (interrupted)

MR. BEHLKE: An accurate record of this nature can be compiled. I don't feel that I would be in position to make a statement in regard to this at this time. I can make a statement in regard to -- in general to some of the delays that we have noticed. An example of this, in the Everett area, back in the early '50's, we had requested these mills to recover waste liquor at that time. As I recall, they had pretty well committed themselves to do it. The Korean war came along. They put in a temporary facility of the three thousand foot outfall line because of the critical nature of materials that would be required to put in recovery facilities. This again has -- this temporary facility has grown into a permanent facility over the last ten years.

MR. DWORSKY: Well, can we look forward then to you including in the record to Mr. Chun, the history of delays at each of the seven pulp and paper mill locations in the Puget Sound?

MR. BEHLKE: Yes.

MR. DWORSKY: That's fine.

CHAIRMAN STEIN: May I interrupt a minute, Leonard? I think I recall that, and as some of you know, I've been in this business a long time -- and correct me if I'm wrong on this, but about the time the Korean war came along, I understood that an agreement had been reached and it's a question of not being able to get steel or something, and as soon as that resumed, these facilities would be put into effect. Is that substantially the way --- (interrupted)

MR. BEHLKE: This is substantially true. As I recall, the orders were issued to these mills and then these orders were held in abeyance pending this outcome.

CHAIRMAN STEIN: But these full facilities have not been put in as yet?

MR. BEHLKE: No; no.

CHAIRMAN STEIN: All right.

MR. DWORSKY: Mr. Behlke, I wonder if you would also see to it that the material that I know the State Water Pollution Control Commission has, pertaining to the conditions that you have established and which are contained in your temporary permits at each of these seven pulp and paper mill locations in Puget Sound, could be indicated for the record and also the exceptions that have been taken by those who are appealing these permits -- these exceptions also to be entered into the record.

MR. BEHLKE: Well, along this regard -- again, most of the -- in most cases, the exceptions to the permits start out with the mills feeling that we are in violation of the 14th Amendment to the U. S. Constitution and then go down from there to the State Constitution and then eventually get into the conditions of their permits themselves. This is a kind of a general outline of what these include. But we will include these.

MR. DWORSKY: Fine; thank you.

CHAIRMAN STEIN: Again, this is just a point of clarification. Do I take it that the objections to the conditions of your permits are on broad, general, constitutional terms and the applicability of statute rather than an argument of just what is going to be done -- that something will be done?

MR. BEHLKE: Well, to be possibly a little facetious, personally, I feel that there is everything, including the kitchen sink in them, really. They start out with the broad basis of the law and then go right on down the line to specific elements.

CHAIRMAN STEIN: Would it be too much for you to get all that for our record?

MR. BEHLKE: No, we will include those.

CHAIRMAN STEIN: Thank you.

MR. DWORSKY: I'm nearly to the last point, Mr. Behlke, but not quite. I wonder if you could also add into the record, the installations that apparently might be contemplated by the conditions that you have now included in your permit for each of these locations of the seven pulp and paper mills in Puget Sound? I think also you had that as part of your file and this would be merely to complete this portion of the record.

MR. BEHLKE: All right.

MR. DWORSKY: Now, then, you have in addition to the material that you have presented, some additional statements in your written record, which we have a copy of here. Beyond the Summary, page 36, you have an Exhibit 1, and would you like to proceed, perhaps, in terms of entering the balance of this material into the record?

MR. BEHLKE: With the permission of the conferees, would it be permissible to mention what these are and enter them that way, rather than reading them?

CHAIRMAN STEIN: I think without objection they will be entered as if they were read.

MR. BEHLKE: Exhibit 1 is a statement of policy with respect to sewage discharges into Lake Washington, as revised August 11, 1958; Exhibit 2 is the adopted Rule 04.252 of the Rules and Regulations of the Pollution Control Commission. This is in regard to the pulp mill policy. The remaining tables are the status of industries and municipalities -- remaining two tables are the status of industries and municipalities by drainage basins 1 through 17.

CHAIRMAN STEIN: May I have an explanation on that? I think I can figure out what "T" means, but I'm not sure I know what "E" means and in no place is that indicated for the record.

MR. BEHLKE: In this summary, all permits -- all companies have permanent permits that do not have a "T" or an "E" in front of their names. The ones with "T's" indicated have temporary permits, the ones with "E's" have expired permits -- expired temporary -- excuse me -- expired permits and have not reapplied for a permanent permit.

MR. DWORSKY: Thank you, Mr. Behlke, and then finally, with respect to the table, can we go on the assumption that those cities and industries named in the table that have either temporary or expired permits are cities and industries that are subject to the abatement proceedings of the state?

MR. BEHLKE: This is true of only the industries. We do not issue permits to the municipalities.

MR. DWORSKY: Then those would apply in terms of other aspects of your program?

MR. BEHLKE: Yes.

MR. DWORSKY: These are those who have to do something about remedying the pollution that they're creating?

MR. BEHLKE: Yes. Otherwise they wouldn't have a temporary permit.

MR. DWORSKY: In terms of a list of places within the area of Puget Sound, Straits of Juan de Fuca and their tributaries and estuaries, can we then assume that the establishments and municipalities that might be listed within the framework of this conference as having needs, would be that list which could be compiled out of your appendices material here, having either "T" or an "E" preceding their name?

MR. BEHLKE: This is true of the industries, yes. Muncipalities, I believe, as you can see, are shown in three statuses, that have treatment under construction or planning and no active program. Now, in the category of a "no active program", I would believe that these would be the ones that would be subject to action of this conference, on a municipal basis.

MR. DWORSKY: We can make this assumption in terms of that which I have just stated or if you prefer, and I think perhaps it might be more preferable if you would then add also into the record, another perhaps table, which would bring those together in a list for both cities and industries.

MR. BEHLKE: If the conference so desires, we would be very happy to.

CHAIRMAN STEIN: I think that would be helpful.

MR. DWORSKY: And of course, this goes along with Mr. Stein's previous request that the Federal installations also be so listed.

MR. BEHLKE: We didn't remark, as I recall in detail, about the Federal installations. Actually, all Federal installations within the state either have treatment or are in a program to correct their problem, with the exception possibly of the discharge from naval ships entering Puget Sound. This again was listed very -- was not mentioned specifically but was covered under the problem of sanitary wastes from ships and small boats.

MR. DWORSKY: I have no further questions, Mr. Chairman.

MR. BERGERSON: Thank you, Jim. I believe that concludes the presentation of the State Pollution Control Program and Status. In addition to this, we also have statements by other departments of our State Government. Some of them are from the departments which are included in the Pollution Control Commission and some are other departments.

(Whereupon, at the direction of the Chairman, the following material is herewith copied into the record as if read, as follows:)

EXHIBIT I

STATEMENT OF POLICY WITH RESPECT TO SEWAGE DISCHARGE INTO LAKE WASHINGTON

(Revised August 11, 1958)

WHEREAS competent investigation has demonstrated that the waters of Lake Washington have reached a state of degradation such that there is impending danger of profuse algal growths; and,

WHEREAS the conditions found in Lake Washington follow a pattern of deterioration experienced in comparable lakes elsewhere, and for which investigative records are available; and,

WHEREAS it has been determined that the major causative agent of deterioration has been sewage and treatment plant effluents discharged to these lakes by communities and individuals; and,

WHEREAS the expected population growth and industrial development will significantly increase the sources of waste in the drainage basin; and,

WHEREAS considerable numbers of people are now, and will be for some time in the future, dependent upon Lake Washington for domestic water supply; and,

WHEREAS the degradation of the waters of Lake Washington threatens the recreational uses of the Lake, particularly as to contamination of the public and private swimming beaches on its shores; and, WHEREAS it is within the scope of responsibility of the Pollution Control Commission to foresee and determine such conditions as may be hazardous to the beneficial uses of the waters of the State, and to take such action as may be necessary and possible to attain correction of such conditions; and,

WHEREAS it is both possible and feasible to intercept sewage from the several communities in the drainage basin of Lake Washington and transport this sewage by various means and devices to the waters of Puget Sound; and,

WHEREAS it is the continuing policy of the Commission to require the treatment of sewage for discharge into Puget Sound; and,

WHEREAS it is both possible and feasible to discharge sewage thus collected and treated into the waters of Puget Sound in a manner consistent with good engineering practice;

IT SHALL, THEREFORE, Be the policy of the Pollution Control Commission to adhere to the following principles in considering for approval plans for sewage treatment plants in Lake Washington drainage basin. In applying this policy, the drainage basin of Lake Sammamish is considered as and accepted to be a part of the drainage basin of Lake Washington.

1. All sewage shall be treated and all treatment plant effluents must eventually be diverted from Lake

Washington and Lake Sammamish to some point or points on Puget Sound.

2. That all future expansion of existing sewage treatment plants must be designed on the basis of eventual diversion to Puget Sound.
3. That in the design of future sewer systems and sewage treatment plants where there may be two or more alternate points of discharge available, the one which most closely approaches the ultimate scheme of diversion to Puget Sound shall be the only acceptable one of the alternates.
4. That if it appears impractical or financially not feasible to select the solution in accordance with (3) above, consideration will be given to the next available alternate as a temporary solution only, and conformance to the ultimate scheme of diversion to Puget Sound will be required.
5. That, pending the construction of facilities designed to accomplish the diversion of sewage or sewage effluents from the Lake Washington drainage basin, all future sewage disposal facilities shall be designed so as to prevent the direct discharge of sewage of sewage treatment effluents to the surface waters, streams or watercourses of the basin by spreading the effluent upon, or otherwise con-

fining it to land areas unless it is demonstrated to the Commission that disposal by such means cannot reasonably be accomplished.

6. That all properties within reach of existing or proposed collection and treatment facilities designed in conformance with the principles set forth above, shall connect to such facilities.
7. Such facilities shall be planned to provide capacity for adjacent areas.

ADOPTED AND BECOMES EFFECTIVE this eighth day of February, 1956

POLLUTION CONTROL COMMISSION

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EXHIBIT II

ORDER ADOPTING RULE 04.252 OF
THE RULES AND REGULATIONS OF THE
POLLUTION CONTROL COMMISSION

The Pollution Control Commission hereby adopts the following rules as regards the pulp and paper industry of the State of Washington; the rule to be known as 04.252 of Rules and Regulations of the Pollution Control Commission:

1. The burden of proof shall be upon the applicants for permits sought pursuant to RCW 90.48.180 to show that any increase in the levels of sulfite waste concentrations in the waters of the state contemplated by any such permit

over those which have been determined to exist by previous state agency field surveys, or those which have been authorized in permanent permits, does not or will not unduly pollute the receiving waters.

2. Any applicant seeking a permit pursuant to RCW 90.48.180 shall be required to provide adequate systems of recovery of settleable solids, or equal, to prevent undue pollution and protect all water uses from process wastes as a condition to the issuance of any such permit, which installation of recovery procedures shall be accomplished within a period not to exceed three years from the date of the issuance of such a permit.

3. All sulfite pulp mills not having permanent permits and other operations utilizing similar pulping operations shall be required to file a positive plan with the Pollution Control Commission for the installation of recovery facilities or show that existing facilities are adequate to prevent undue pollution of the receiving waters and to fully protect all other water uses from process wastes, such facilities to be in operation within three years. The Director is directed to institute the appropriate administrative proceedings for these purposes forthwith notifying temporary permittees pursuant to the provisions of the Uniform Administrative Procedure Act and the administrative rules and regulations of the Pollution Control Commission.

4. In all proceedings for the issuance, renewal or revision of permits previously issued, the commission staff and the technical staffs of any other agency of the State of Washington may offer evidence in support of conditions to the issuance of such a permit for or in support of any other position which the commission in its discretion may deem appropriate under the circumstances.

5. In all proceedings for the issuance of permits or for the revision of existing permits, leave shall be freely given any person, for or corporation whose interests are or may be affected by the proceedings to intervene therein and offer evidence for or against the issuance of such a permit or for or against such conditions as they may by appropriate pleading offer to the commission.

DRAINAGE BASIN #1

Permanente Cement Co.	Bellingham
McRae Packing Co., Inc.	Edison
Hillview Dairy, Inc.	Bellingham
Medcalf Dairy, Inc.	Bellingham
Whatcom Dairymen's Assn.	Bellingham
Stokely-Van Camp, Inc.	Bellingham
Bayshore Lumber Co.	Bellingham
Bellingham Sash & Door Co.	Bellingham
Brooks Lumber Co.	Bellingham
R. G. Haley Internat'l Corp., Inc.	Bellingham

	Holeman & Bensen Lbr. Co.	Bellingham
	Lind Lumber Co.	Bellingham
	Mt. Baker Plywood, Inc.	Bellingham
	Oeser Cedar Co.	Bellingham
	York Ellis Mill Co., Inc.	Bellingham
	Blaine Fish Products Co.,	Blaine
	Frieses Hide & Fur Co.	Bellingham
	Kratzig Meat Co.	Bellingham
	T & H Rendering Works, Inc.	Mt. Vernon
	Wallace Poultry	Bellingham
	Sullivan Poultry Co.	Bellingham
	Lind Gravel Co.	Bellingham
	Alaska Packers Assn.	Blaine
	Blau Oyster Co.	Bow
	Bornstein Seafoods Inc.	Bellingham
	Burk-Fidalgo Cannery	Bellingham
	Columbia Rivers Packers Assn.	Bellingham
	Dahl Fish Co.	Bellingham
	Pacific American Fisheries, Inc.	Bellingham
	Rock Point Oyster Co.	Blanchard
	Whiz Fish Products Co.,	Blaine
	Whiz Fish Products Co.	LaConner
(T)	Pacific Coast Paper Mills of Wash.	Bellingham
(T)	Puget Sound Pulp & Timber Co. (pulp mill)	Bellingham
(T)	Puget Sound Pulp & Timber Co. (paper mill)	Bellingham

DRAINAGE BASIN #2

	Whatcom Builders Supply	Ferndale
	DeJong Packing Co.,	Lynden
	Farmers Meat Co.,	Sumas
	Ferry Bros. Inc.	Ferndale
	Whatcom-Skagit Co. Rendering	Ferndale
	Braddock Frosted Foods, Inc.	Lynden
	Breyer's Ice Cream Co.	Lynden
	Kale Canning Co.	Everson
	Kelley, Farquhar & Co.	Ferndale
(T)	Lynden Berry Growers Inc. (pea plant)	Lynden
	Lynden Berry Growers Inc. (berry division)	Lynden
	Mobile Oil Co.	Ferndale
(T)	Western Condensing Co.	Lynden
(T)	Whatcom County Darymen's Assn.	Lynden

DRAINAGE BASIN #3

Loerland Dairy	Oak Harbor
McDugle-Wagner Dairy, Inc.	Anacortes
San Juan Island Dairymen's Assn.	Friday Harbor
General Chemical Div. (Allied Chem. & Die Corp)	Anacortes
Northwest Petrochemical Corp.	Anacortes
Shell Oil Company	Anacortes
Texas Company	Anacortes
Anacortes Veneer, Inc.	Anacortes
Pioneer Shingle Company	Anacortes

	Standard Shingle Company	Anacortes
	Hoffman Poultry Company	Oak Harbor
	McCauley Packing Company	Lopez
	Oak Harbor Meats	Oak Harbor
	Trafton & Sons	Anacortes
	Island Sand & Gravel Co.	Friday Harbor
(T)	Coos Bay Pulp Corp.	Anacortes
	American Packing Co.	Anacortes
	Bornstein Sea Foods, Inc.	Anacortes
	Farwest Fishermen, Inc.	Anacortes
	Fishermen's Packing Corp.	Anacortes
	Friday Harbor Canning Co.	Friday Harbor
	Harbor Custom Cannery	Freeland
	John C. Jackson, Inc.	Friday Harbor
	Nakat Packing Corp.	Anacortes
	Sebastian Stuart Fish Co.	Anacortes

DRAINAGE BASIN #4

Carnation Co.	Mt. Vernon
Mountain View Dairy	Mt. Vernon
Northwest Darigold Assn.	Mt. Vernon
Skagit Co. Dairymen's Assn.	Burlington
Skagit Steel & Iron Works	Sedro Woolley
Cascade Frozen Foods, Inc.	Burlington
Frigid Food Products, Inc.	Mt. Vernon
Libby, McNeill & Libby	Mt. Vernon

National Fruit Canning Co.	Burlington
Sakuma Bros.	Mt. Vernon
Stokely Van Camp, Inc.	Mt. Vernon
Three Rivers Plywood & Timber Co.	Darrington
Willis, Rogers, & Pearson Lumber Co., Inc.	Sedro Woolley
Avon Packing Co.	Mt. Vernon
Galbreath Packing Co.	Burlington
Jewell's Fresh Poultry	Mt. Vernon
Mount Vernon Meat Co.	Mt. Vernon
San Juan Islands Cannery	LaConner
Sund Packing Co.	Conway
Western Farmers, Assn.	Mt. Vernon
Associated Gravel Co.	Lake Shannon
Mt. Vernon Sand & Gravel Co.	Mt. Vernon
Skagit Sand & Gravel Co.	Mt. Vernon
Superior Portland Cement Inc.	Concrete

DRAINAGE BASIN #5

Foremost Food & Chemical Co.	East Stanwood
Stokely-Van Camp, Inc.	East Stanwood
Twin City Foods, Inc.	Stanwood
Florence Packing Co.	Stanwood
Hayes Packing Co.	Arlington
Rugg Packing Co.	East Stanwood
Amco Mining Co.	Fall City
Arlington Sand & Gravel Co.	Arlington

V. Bjerkaker Sand & Gravel Co.	Arlington

DRAINAGE BASIN #6

Foremost Medosweet Dairies	Everett
Golden West Creamery	Everett
Tom Adams Plating Co.	Everett
American Bitumuls & Asphalt Co.	Richmond Beach
American Boiler Works, Inc.	Everett
Pacific Car & Foundry Co.	Everett
Puget Sound Bridge & Dredge Co.	Everett
Sumner Iron Works	Everett
Union Oil Co. of Calif.	Edmonds
Western Gear Corp.	Everett
Everett Plywood & Door Corp.	Everett
Northwestern Lumber & Mfg. Co. Inc.	Everett
Jamison Lumber & Shingle Co.	Everett
Pilchuck Shake & Lumber Co.	Everett
Super Mill Co.	Everett
Washington Timber Products, Inc.	Everett
Associated Sand & Gravel Co.	Everett
Builder's Sand & Gravel Co.	Edmonds
Washington Asphalt Co.	Everett
Western Aggregates, Inc.	Everett
(T) Scott Paper Co. (pulp mill)	Everett
(T) Scott Paper Co. (paper mill)	Everett
(T) Weyerhaeuser Co. (Sulphite mill)	Everett

(E) Weyerhaeuser Co. (kraft mill)	Everett
Everett Fish Co.	Everett
Scheerer Canning Co.	Everett
General American Transportation Co.	Edmonds

DRAINAGE BASIN #7

Arkinstall Dairy	Snohomish
Sno-King Dairy	Monroe
Berry Valley Farm Pak	Lake Stevens
Evergreen Frozen Foods Co.	Snohomish
Ferguson Canning Co.	Snohomish
Hershey Packing Co.	Snohomish
Puyallup-Sumner Sales Corp.	Monroe
Stokely-Van Camp	Monroe
Snohomish Co. Berry Growers Assn.	Marysville
Valley Canning Co.	Carnation
Van Valin Frozen Foods Co.	Snohomish
Eclipse Lumber Co.	Everett
Everett Lumber Co.	Everett
Lloyd Van Horn Lumber & Fuel Co.	Lake Stevens
Robinson Plywood & Timber Co.	Skykomish
Seattle-Snohomish Mill Co.	Snohomish
Timber Lines Lumber Co.	Monroe
Washington Plywood Co., Inc.	Everett
Weyerhaeuser Co.	Snoqualmie Falls
Weyerhaeuser Co. (Lumber Div.)	Everett

(T)	Art's Poultry	Everett
	Federal Packing Co.	Everett
	Deishers Everett Poultry	Everett
	Lakeview Poultry	Snohomish
	Monroe Packing Co.	Monroe
	Puget Sound By-Products, Inc.	Everett
	Snohomish Packing Co., Inc.	Snohomish
	Sunset Packing Co.	Everett
	Van Valin Frozen Foods (poultry)	Snohomish
	James Wallace Packing Co.	Duvall
	Kromona Consolidated Mines, Inc.	Sultan
	Snohomish Sand & Gravel Co., Inc.	Snohomish
	Tri-City Sand & Gravel Co., Inc.	Everett
(T)	Simpson-Lee Paper Co. (pulp mill, paper mill)	Everett
(T)	Simpson-Lee Paper Co. (de-inking plant)	Everett
	Great Northern Railway Co.	Everett
	Ideal Cement Co.	Grotto
	Jansha Tanning Co.	Marysville

DRAINAGE BASIN #8

Darigold Farms	Issaquah
Lucerne Milk Co.	Bellevue
Safeway (Meat Warehouse)	Bellevue
Safeway (Prepak Dept.)	Bellevue
American Tar Co.	Seattle
Boeing Airplane Co.	Renton

	Northwest Bolt & Nut Co.	Seattle
	Northwest Steel Rolling Mills, Inc.	Seattle
	Pacific Car & Foundry Co.	Renton
	Reilly Tar & Chemical Co.	Renton
	Scott Galvanizing Co.	Seattle
	States Batteries, Inc.	Seattle
	Superior Refineries, Inc.	Woodinville
	Kirkland Custom Cannery	Kirkland
	Wildcliffe Blueberry Farm	Kenmore
	J. H. Baxter & Co. (peeling plant)	Renton
	J. H. Baxter & Co. (treating plant)	Renton
	Gauthier Bros.	Maple Valley
	Seattle Cedar Lumber Co.	Seattle
(T)	U. S. Plywood Corp.	Seattle
	Clark Turner's Poultry Co.	Woodinville
	Fisher Packing Co.	Issaquah
	James Knight Packing Co.	Woodinville
	Kenmore Packing Co.	Bothell
	B & R Coal Co.	Renton
	Cadman Gravel Co.	Redmond
	Cedar River Gravel Co.	Maple Valley
	Edinger Gravel Co., Inc.	Kenmore
	Issaquah Sand & Gravel Co.	Issaquah
	Kirkland Sand & Gravel Co.	Kirkland
	Kenmore Sand & Gravel Co.	Kenmore

Lakeside Gravel Co.	Issaquah
Rainier Asphalt Paving Co.	Renton
Stoneway Sand & Gravel Co.	Renton
Washington Asphalt Co.	Seattle
Western Sand & Gravel Co.	Maple Valley
Conklin Appliance Co.	Lynnwood
North Coast Tanning Co.	Seattle
Old West Wines, Inc.	Renton
Washington Natural Gas Co.	Seattle

DRAINAGE BASIN #9

Arden Farms	Seattle
Carnation Co.	Seattle
Consolidated Dairy Products Co.	Seattle
Darigold Farms	Seattle
Golden Rule Dairy	Seattle
Medosweet Dairies	Seattle
Paramount Dairies Inc.	Seattle
Royal Dutch Ice Cream Co.	Seattle
Vitamilk Dairy, Inc.	Seattle
Art Brass & Plating Works	Seattle
Cascade Chemical Co.	Seattle
Chromium Corp.	Seattle
Electro-Chrome Co., Inc.	Seattle
Industrial Plating Works, Inc.	Seattle
Linstead Rice O'Connor Silversmiths, Inc.	Seattle

Mastercraft Metal Finishing	Seattle
Namco Electric Co.	Seattle
North Coast Chemical & Soap Works	Seattle
Pacific Glue Manufacturing Co.	Seattle
Pascal Company, Inc.	Seattle
Precision Engineering Inc.	Seattle
Queen City Plating Co.	Seattle
Rogers Foundry Inc.	Seattle
Saudtner-Valentine Chemical Co.	Seattle
Sweden Freezer Mfg. Co.	Seattle
Union Oil Co. of Calif.	Seattle
American Conserving Co.	Seattle
Green Garden Food Products, Inc.	Seattle
Hilton Canning Co. Inc.	Seattle
Junge & Co.	Seattle
Tyrrell's Inc.	Seattle
Vashon Island Packing Co.	Vashon
Nettleton Lumber Co.	Seattle
Acme Poultry Co.	Seattle
Chine Poultry Co.	Seattle
(T) Allied Poultry Co.	Seattle
James Henry Packing Co.	Seattle
Nick's Poultry	Seattle
Northwest Poultry Co.	Seattle
Ostrom Mushroom Co.	Seattle

	Quong Wah Co.	Seattle
(T)	Rainier Poultry Co.	Seattle
	Seattle Packing Co.	Seattle
(T)	Seattle Poultry, Inc.	Seattle
	Swift & Company	Seattle
	Western Farmers Assn.	Seattle
(T)	City of Seattle Asphalt Plant	Seattle
	Klinker Sand & Gravel Co.	Seattle
	Lake City Gravel & Materials, Inc.	Seattle
	Meade Sand & Gravel Co.	Midway
(T)	Mutual Materials Co.	Seattle
	Crown Seafood Sales, Inc.	Seattle
	Booth Fisheries Corp.	Seattle
	Dressel-Collins Fish Co.	Seattle
	Eardley Fisheries, Inc.	Seattle
	Haines Oyster Co.	Seattle
	Main Fish Co.	Seattle
	McCallum-Legaz Fish Co., Inc.	Seattle
	New England Fish Co.	Seattle
	Northwest Fisheries Inc.	Seattle
	Odion Sea Products, Inc.	Seattle
	Perfection Smokery, Inc.	Seattle
	Puget Sound Salmon Egg Co.	Seattle
	Rupert Fish Co., Inc.	Seattle
	San Juan Fishing & Packing Co.	Seattle

Sebastian-Stuart Fish Co.	Seattle
Washington Fish & Oyster Co.	Seattle
Whiz Fish Products Co.	Seattle
Auburn Wineries Inc.	Seattle
(T) Cargill, Inc.	Seattle
Great Northern Railway Co.	Seattle
(T) Northwest Orient Airlines, Inc.	Seattle
(T) Pan-American World Airways, Inc.	Seattle
Seattle Steam Corp. (Western Ave. Plant)	Seattle
Seattle Steam Corp. (Post St. Plant)	Seattle
Sick's Rainier Brewing Co.	Seattle
Union Pacific R.R. Co. (argo)	Seattle
Union Pacific R.R. Co. (4th & Jackson)	Seattle
(T) United Air Lines, Inc.	Seattle
(T) Western Air Lines, Inc.	Seattle

DRAINAGE BASIN #10

Auburn Dairy Products	Auburn
Green River Cheese Co.	Renton
Kent Farm Dairy	Kent
Riverview Farms	Renton
Smith Bros. Farms, Inc.	Kent
Alaskan Copper Works	Seattle
American Marietta Co.	Seattle
Appliance Bldg. Co., Inc.	Seattle
Bethlehem Steel Co. (Rolling mill)	Seattle

	Bethlehem Steel Co. (Fastener Div.)	Seattle
	Bethlehem Steel Co. (Galvanizing plant)	Seattle
	Boeing Airplane Co. (East Field)	Seattle
	Boeing Airplane Co. (Plant I)	Seattle
	Boeing Airplane Co. (Pilotless aircraft plant)	Seattle
	Boeing Airplane Co. (Developmental Center)	Seattle
	Boeing Airplane Co. (Plant II)	Seattle
	Borden Chemical Co.	Kent
	Bunker Hill Co.	Seattle
	Everts Commercial Transport Co.	Kent
(T)	Fruehauf Trailer Co.	Seattle
	Hydraulic Supply Mfg. Co.	Seattle
	Isaacson Iron Works	Seattle
(T)	Kenworth Motor Truck Co.	Seattle
	Liquid Carbonic Corp.	Seattle
(T)	Monsanto Chemical Co.	Seattle
	National Steel Construction Co.	Seattle
(T)	Northwest Cooperage Co.	Seattle
	Northwest Metal Products Co.	Seattle
	Olympic Steel Works, Inc.	Seattle
	Pacific Car & Foundry Co.	Seattle
	Puget Sound Bridge & Dredge Co.	Seattle
	Safeway Stores (bleach plant)	Auburn
	Seattle Foundry Co. Inc.	Seattle
	Todd Shipyards Corp.	Seattle

Washington Iron Works	Seattle
Western Oxygen	Seattle
Western Steel Casting Co.	Seattle
Western Processing Co.	Kent
Cedergreen Frozen Pack Corp.	Seattle
Libby, McNeill & Libby	Kent
National Fruit Canning Co.	Seattle
Stokely-Van Camp (217 1st. N.)	Kent
Stokely-Van Camp (Railroad Ave.)	Kent
Baxter-Wycoff Co.	Seattle
Phoenix Lumber Co.	Seattle
Seaboard Lumber Co.	Seattle
U. S. Plywood Corp. (Lumber Div.)	Seattle
West Waterway Lbr. Co.	Seattle
Auburn Packing Co.	Auburn
City Packing Co.	Seattle
Jonientz Packing Co.	Renton
Miller Packing Co.	Seattle
P.D. & J. Meats	Kent
Oswald Packing Co.	Auburn
Seattle Rendering Co.	Seattle
Draghi Coal Co.	Black Diamond
Black River Quarry	Seattle
(T) Northwest Asphalt Co.	Seattle
Palmer Coking Coal Co.	Black Diamond

	Puget Sound Bridge & Dredging Co. (Riverton)	Seattle
	Smith Bros. Silica Sand Co.	Auburn
	American Wine Growers	Seattle
	Fisher Flouring Mills Co.	Seattle
	J. A. Jack & Sons, Inc.	Seattle
	Kaiser Gypsum Co. Inc.	Seattle
(T)	Lone Star Cement Co.	Seattle
	Northern Pacific R.R. Co.	Auburn
	Permanente Cement Co.	Seattle
	DRAINAGE BASIN #11	
	Clover Leaf Dairy	Sumner
	Mazza Cheese Co.	Orting
	Sanitary Infant Dairy	Puyallup
	Farman Bros. Pickle Co.	Enumclaw
	Kelley, Farquhar & Co.	Tacoma
	Nalley, Inc.	Tacoma
(T)	Puyallup & Sumner Sales Corp.	Puyallup
	Valley Packers, Inc.	Puyallup
	Wash. Rhubarb Growers Assn.	Sumner
	Aladdin Plating Co.	Tacoma
	General Plastics Mfg. Co.	Tacoma
	Les Davis Fishing Tackle Co.	Tacoma
	National Soap Co.	Tacoma
	Pop Geer	Tacoma
	Donald Lyle Co., Inc.	Tacoma

	Puget Sound Mfg. Co.	Tacoma
	Weyerhaeuser Co. (White River Br.)	Enumclaw
	Federal Meat Co.	Tacoma
	Hygrade Food Products Corp.	Tacoma
	Johansen's Meats	Enumclaw
(T)	Pacific Meats	Puyallup
	Pacific Refrigerating Co.	Tacoma
	Pederson's Fryer Farms, Inc.	Tacoma
	Weber & Ritter Co. Inc.	Sumner
	Wilbur Ellis Co.	Tacoma
	Canyon Gravel & Supply Co.	Puyallup
	Tim Corliss & Son Co.	Sumner
	Hill Top Gravel Co.	Puyallup
	Mt. Rainer Coal Co.	Wilkeson
	Tongaw & Olson, Inc.	Enumclaw
(E)	Container Corp. of America	Tacoma
(E)	Fibreboard Products, Inc.	Sumner
	St. Regis Paper Co. (pulp mill)	Tacoma
(E)	St. Regis Paper Co. (paper mill)	Tacoma
	Heidelberg Brewing Co.	Tacoma
(T)	Standard Brands Inc.	Sumner
	Silver Springs Brewing Co.	Tacoma
	Union Pacific R.R. Co.	Tacoma

DRAINAGE BASIN #12

Flett Dairy	Tacoma

Foremost Dairies, Inc.	Tacoma
Fort Lewis Dairy	Ft. Lewis
Oakwood Dairy	Tacoma
Supreme Dairy	Tacoma
Tacoma Milk Producers Assn.	Tacoma
Atlas Foundry & Machine Co.	Tacoma
(T) Bay Smelting Co.	Tacoma
Birchfield Boiler Inc.	Tacoma
American Smelting & Refining Co.	Tacoma
Cascade Pole Co.	Tacoma
Eastern Electroplating Co.	Tacoma
General Chemical Div. Allied Chem. Corp.	Tacoma
Griffin Wheel Co.	Tacoma
Hooker Electrochemical Co.	Tacoma
Kaiser Aluminum & Chemical Corp.	Tacoma
National Oil Company	Tacoma
Ohio-Ferro Alloys Corp.	Tacoma
Pennsalt Chemicals Corp.	Tacoma
Philadelphia Quartz Co. of America	Tacoma
Purex Corp. Ltd.	Tacoma
Reichhold Chemicals	Tacoma
St. Johns Motor Express Co.	Tacoma
Seymour Electroplating Co.	Tacoma
Stauffer Chemical Co.	Tacoma
Tacoma Boat Building Co., Inc.	Tacoma

Tacoma Plating Co.	Tacoma
U. S. Oil Refining Co.	Tacoma
Washington Steel Products	Tacoma
Zidell Dismantling Co., Inc.	Tacoma
Kelley, Farquhar & Co.	Tacoma
Buffelen Woodworking Co.	Tacoma
M. R. Smith Shingle Co.	Tacoma
North Pacific Plywood Co., Inc.	Tacoma
Northwest Door Co.	Tacoma
Puget Sound Plywood Inc.	Tacoma
St. Regis Paper Co. (Lumber Div.)	Tacoma
Tacoma Narrows Lbr. Co., Inc.	Tacoma
Corbitts Poultry	Tacoma
J. Cozza & Sons	Tacoma
Puget Sound Rendering Works	Tacoma
Nalley Packing Co.	Tacoma
Glacier Sand & Gravel Co.	Steilacoom
Pioneer Sand & Gravel Co.	Steilacoom
Woodworth & Co., Inc.	Tacoma
West Tacoma Newsprint Co.	Steilacoom
Marush Fish & Oyster Co.	Tacoma
Northern Fish Products Co.	Tacoma
(T) Archer-Daniels-Midland Co.	Tacoma
Chicago, Milwaukee, St. Paul & Pacific R.R. Co.	Tacoma
General Mills Inc.	Tacoma

(T) Great Northern R.R. Co.	Tacoma
(T) Northern Pacific R.R. Co.	Tacoma
Rheem Mfg. Co.	Tacoma
Western Plastics Corp.	Tacoma

DRAINAGE BASIN #13

Danish Banquet Cheese Co.	Nisqually
Olympia Cheese Co.	Olympia
Swan Lake Dairy	Eatonville
Alder Lake Mill, Inc.	Alder
St. Regis Paper Co. (Ladd operation)	
St. Regis Paper Co. (Kapowsin operations)	
Wilkens Packing Co.	Graham
Holroyd Co.	Nisqually

DRAINAGE BASIN #14

Buchanan Lbr. Co.	Olympia
Cascade Treating Co.	Olympia
Delson Lbr. Co.	Olympia
Georgia-Pacific Corp.	Olympia
Hardel Mutual Plywood Corp.	Olympia
Simpson Timber Co. #3	Shelton
Simpson Timber Co. (Plywood)	Olympia
Simpson Timber Co. #1	Shelton
Simpson Timber Co. #2	Shelton
Simpson Timber Co. (Plywood)	Shelton
Simpson Timber Co-Rayonier Joint Power	Shelton

St. Paul & Tacoma Lbr. Co. Plywood	Olympia
Simpson Logging Co. (Veneer Block Saw)	Shelton
Allison Trout Farm	Olympia
Chambers Packing Co.	Olympia
Shelton Meat Co.	Shelton
Adams Oysters	Olympia
Walter E. Allen Oysters	Shelton
Bayshore Oyster Co.	Shelton
M. L. Bishop Oysters	Shelton
Brenner Oyster Co. Inc.	Shelton
Coast Oyster Co. (Keypoint)	Allyn
O. M. Davis (oysters)	Shelton
Ellison Bros. Oyster Co.	Olympia
Kamilche Point Oyster Co.	Shelton
National Fish & Oyster Co.	Olympia
Art Nelson Oyster Co.	Shelton
Thomas E. Nelson Oyster Co.	Shelton
Olympia Oyster Co.	Shelton
Rock Point Oyster Co. (plant #2)	Olympia
John Sells (oysters)	Shelton
Karl L. Sells (oysters)	Shelton
Z. F. Simmons Oyster Co.	Olympia
I. E. Stansbury (oysters)	Shelton
Waldrip Oyster Co.	Shelton
R. F. Wallin (oysters)	Shelton

Graystone of Shelton	Shelton
Johns Creek Sand & Gravel Co.	Shelton
Sjoboen Bros.	Olympia
Olympia Brewing Co.	Olympia
St. Charles Winery #1	Grapeview
St. Charles Winery #2	Grapeview
Werberger Winery & Distilling Co. Inc.	Shelton
Rayonier, Inc.	Shelton
Simpson Logging Co. (Insulating board plant)	Shelton

DRAINAGE BASIN #15

Kitsap-Mason Darymen's Assn.	Bremerton
Price's Golden Guernsey Dairy	Port Orchard
Puget Sound Naval Shipyard	Bremerton
U. S. Naval Torpedo Station	Keyport
Northwest Berry Packers, Inc.	Bainbridge Island
Baxter-Wycoff Co.	Creosote
Schneebeck Lumber Co.	Silverdale
Keypoint Oyster Co.	Poulsbo
Ace Paving Co.	Bremerton
Chico Gravel Co.	Bremerton
North Kitsap Gravel & Asphalt Co., Inc.	Poulsbo
Cascade Natural Gas Corp.	Bremerton

DRAINAGE BASIN #16

Pope & Talbot Inc.	Port Gamble
Belfair Sand & Gravel Co.	Belfair

General Construction Co.	Port Ludlow
Hood Canal Oyster Co.	Belfair
Danielson Oyster Farms	Quilcene

DRAINAGE BASIN #17

Angeles Cooperative Creamery	Port Angeles
Sequim Creamery Assn.	Sequim
Peninsula Plywood Corp.	Port Angeles
Crown Zellerbach Corp. (pulp)	Port Townsend
Crown Zellerbach Corp. (paper)	Port Townsend
Crown Zellerbach Corp. (groundwd, sulphite, paper)	Port Angeles
Fibreboard Paper Products Corp. (groundwood, sulphite & paper)	Port Angeles
Rayonier, Inc.	Port Angeles
Bugge Canning Co.	Sequim
Guilford Packing Co.	Port Townsend

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SUMMARY OF MUNICIPAL WASTE TREATMENT

WITHIN PUGET SOUND DRAINAGE BASIN

NAME OF COMMUNITY		STATUS-IN-POPULATION	
	TREATED	UNDER CONST. OR PLANNING	NO ACTIVE PROGRAM
DRAINAGE BASIN #1			
BELLINGHAM	33,800	2,000	
BLAINE		1,800	
Total	33,800	3,800	

NAME OF COMMUNITY	TREATED	STATUS-IN-POPULATION UNDER CONST. OR PLANNING	NO ACTIVE PROGRAM
DRAINAGE BASIN #2			
FERNDALE	1,400		
Lynden	2,600		
Total	4,000		
DRAINAGE BASIN #3			
ANACORTES		7,000	
COUPEVILLE	700		
FRIDAY HARBOR			350
LACONNER			300
LANGLEY		500	
OAK HARBOR	3,850	300	
Total	4,550	7,800	650
DRAINAGE BASIN #4			
BURLINGTON	2,000		
CONCRETE		500	
MOUNT VERNON	5,000		
SEDRO WOOLLEY	3,000		
Total	10,000	500	

NAME OF COMMUNITY	TREATED	STATUS-IN-POPULATION UNDER CONST. OR PLANNING	NO ACTIVE PROGRAM
DRAINAGE BASIN #5			
ARLINGTON	2,000		
STANWOOD	______	300	
Total	2,000	300	
DRAINAGE BASIN #6			
EDMONDS	6,600		
EVERETT	36,900		
MUKILTEO	______	1,000	
Total	43,500	1,000	
DRAINAGE BASIN #7			
GRANITE FALLS	500		
MARYSVILLE	3,000		
MONROE	1,700		
NORTH BEND	900		
SKYKOMISH		100	
SNOHOMISH	3,700		
SNOQUALMIE		300	
SULTAN	______	270	
Total	9,800	670	

NAME OF COMMUNITY	TREATED	STATUS-IN-POPULATION UNDER CONST. OR PLANNING	NO ACTIVE PROGRAM
DRAINAGE BASINS #8, 9 & 10			
AUBURN	8,000		
BLACK DIAMOND		1,000	
BOTHELL	2,200		
ISSAQUAH	1,900		
KENT	9,000		
KIRKLAND	6,000		
REDMOND	1,400		
RENTON	18,450		
SEATTLE	108,750	433,600	
BELLEVUE S. D.	12,000		
BRYN-MAWR S. D.	1,500		
DES MOINES S. D.	2,000		
RAINIER VISTA S. D.	10,000		
SOUTHWEST SUBURBAN S. D.	25,000		
VAL VUE S. D.	1,000		
Total	212,700	434,600	

NAME OF COMMUNITY	STATUS-IN-POPULATION		
	TREATED	UNDER CONST. OR PLANNING	NO ACTIVE PROGRAM
DRAINAGE BASIN #11			
BUCKLEY	3,300		
ENUMCLAW	3,100		
ORTING	1,200		
PUYALLUP	10,000		
SOUTH PRAIRIE			50
SUMNER	3,000		
Total	20,600		50
DRAINAGE BASIN #12			
DUPONT	500		
FIRCREST		3,400	
GIG HARBOR		200	
RUSTON		600	
TACOMA	50,000	75,000	
STEILACOOM		1,400	
Total	55,000	80,600	
DRAINAGE BASIN #13			
EATONVILLE		300	
Total		300	

NAME OF COMMUNITY	STATUS-IN-POPULATION TREATED	UNDER CONST. OR PLANNING	NO ACTIVE PROGRAM
DRAINAGE BASIN #14			
OLYMPIA	17,000		
SHELTON	5,500		
TUMWATER	3,600		
Total	26,100		
DRAINAGE BASIN #15			
BREMERTON	26,000		
PORT ORCHARD		2,400	
POULSBO	1,400		
WINSLOW	1,800		
ANNAPOLIS S.D.		100	
KEYPORT S.D.	150		
KITSAP S.D. #6	450		
Total	29,800	2,500	
DRAINAGE BASIN #16			
NO SEWERED COMMUNITIES			

NAME OF COMMUNITY	TREATED	STATUS-IN-POPULATION UNDER CONST. OR PLANNING	NO ACTIVE PROGRAM
DRAINAGE BASIN #17			
PORT ANGELES			11,000
PORT TOWNSEND			4,000
SEQUIM			1,000
CLALLUM CO. S.D. #1			1,500
Total			17,500

(Following data, received from the Washington State Pollution Control Commission by the Public Health Service, Water Supply and Water Pollution Control, PNW, Portland, Oregon, on January 31, 1962, herewith entered into the record as follows:)

STATEMENT OF THE NATURE OF DELAYS INVOLVING THE TREATMENT OR THE RECOVERY OF USEFUL PRODUCTS FROM SULFITE WASTE LIQUOR

The delays involving the treatment or recovery of useful products from sulfite waste liquor date from 1948 when a reasonable method of accomplishing this became available. Other reasonable methods have since become available, but it was 1948 when the Weyerhaeuser Company converted its Longview plant to the magnesium base for making sulfite pulp.

The means of controlling pollution from sulfite pulp mills within the limits set forth by the Pollution Control Commission have been available since then, but no other mills have been modified to meet the pollution problem from waste sulfite liquor.

Likewise, acting under the 1955 permit law, the Commission issued certain waste discharge permits. The permits to our large sulfite mills specify reduction of approximately 85% in sulfite waste liquor solids discharged to state waters, the

Commission has been unable to obtain compliance from the pulp mills.

The pulp mills have repeatedly expressed themselves in favor of pollution control. Regular reports on research being conducted have been submitted, but no action taken to reduce pollution from sulfite waste liquor. During this time sulfite pulp production has materially increased with a consequent increase in pollution.

In the case of the small pulp mills and paper plants the delay for the most part dates from the date of issuance of the last permits, which are now being contested. The delays in these cases are of much shorter time than delays of the large pulp mills, but delays are significant, and there is no indication of early resolution of these pollution problems.

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(Portion of revised statement given by Mr. James Behlke:)

PULP AND PAPER MILLS PROBLEM

Prior to the formation of the Commission waste discharges from pulp and paper mills were recognized as the largest contribution to the pollution of State waters. Area wide investigations near mills were conducted on the Columbia River, in Grays Harbor, in Port Gardner Bay and elsewhere. There have been reinvestigations and continuing studies are presently being carried out in some areas.

There have been numerous improvements and measures taken to prevent and control pollution. During this time members of the pulp and paper industry committed themselves to individual as well as cooperative research and investigation in order to develop methods for recovery and utilization of sulfite waste liquor solids.

The pulp mill's research program was established at the University of Washington in January, 1944, as a result of a series of conferences among representatives of the pulp and paper industry, the Governor, and other representatives of the State. The project was to be concerned with more complete utilization of forest growth and with stream improvement. Primary emphasis was to be placed on studies of waste materials.

Present support of this program comes from seventeen members of the pulp and paper industry. To date, the cumulative total expenditures are about $600,000 or only $2,000 per mill per year.

As yet, physical application of this research has not resulted in any major waste abatement in the Puget Sound area.

Reduction in the pollutional characteristics and the effects of these effluents has been accomplished by:

1. Save-alls
2. By-product utilization
3. Sulfur dioxide stripping

In the Anacortes area Scott Paper Company has an Ammonia Base 120 Ton/day pulp mill which has a waste water discharge of approximately 8.7 million gallons a day. Suspended solids loss from this mill is about 11,000 lbs/day. Surveys indicated that sulphite waste liquor concentrations as high as 73 parts per million have been found over oyster growing areas. There does not appear to be any widespread dissolved oxygen problem near the mill's Guemes Channel discharge.

There are three mills located in the Port Angeles area; Fibreboard Paper Products Corp., Rayonier, Inc., and Crown Zellerbach Inc. Fibreboard Paper Products Corp. has a capacity of 95 tons per day of pulp, of which 30 Tons/day is groundwood and 65 Tons/day is sulphite pulp. 5.2 million gallons of waste water which contains 90,000 pounds of total solids, dry weight and approximately 6,000 pounds of suspended combustible solids are discharged daily. This is equal to a population equivalent of approximately 260,000 people. The Commission has requested this mill to dispose of their effluent to the Strait of Juan de Fuca and to construct facilities that will provide for a uniform discharge of sulphite waste liquor in both concentration and volume.

The second mill in this area is Rayonier, Inc. which has a daily capacity of approximately 380 Tons/day of sulphite pulp. The waste water flow from the mill is approximately 35,000,000 gallons per day and there is a discharge of

1,600,000 pounds per day of total solids dry weight basis. Of this, approximately 26,000 pounds are suspended combustible solids. This is a population equivalent of 1,500,000 people. The Commission has requested that this mill install facilities to recover digester cooking liquor and remove settleable solids.

The third mill in this area is Crown Zellerbach Corp. which is located on Ediz Hook and discharges waste waters to both the inner harbor and in the Strait of Juan de Fuca. This is a 500 Ton/day mill with 90 tons per day sulphite pulp capacity and the remaining production being groundwood pulp. Discharges from the mill are approximately 330,000 pounds per day of total solids dry weight, of this, approximately 10,800 pounds per day are suspended combustible solids. This is a population equivalent of 360,000 people for the total mill waste. The Commission has requested the mill to dispose of the total effluent into the waters of the Strait and that a method be provided for the uniform discharge of digester cooking liquors. Crown Zellerbach Corp. is the only mill that is endeavoring to comply with the conditions of their permit. The other six mills have protested the recently issued permits.

The maximum sulphite waste liquor concentration that has been found in the Port Angeles area is approximately 17,000 parts per million and dissolved oxygen as low as 0 have been obtained in areas of the inner harbor and adjacent to the outfalls from the mills. Sludge beds have formed near these outfalls and definitely degrade the water of the inner harbor.

Puget Sound Pulp and Timber Company is located in the Bellingham area and discharges to Bellingham Bay. This mill has a 500 Ton/day capacity and discharges approximately 45,000,000 gallons per day. In this waste discharge there are approximately 1,100,000 pounds per day of total solids and of this, 16,000 pounds per day are suspended combustible solids. This mill has a population equivalent of approximately 1,000,000 people. The source of water supply for this mill is the City of Bellingham which obtains the water from Lake Whatcom and the Nooksack River. The Commission has requested the mill recover digester cooking liquors and remove settleable solids. Surveys in the Bellingham Bay area indicate that sulphite waste liquor in excess of 500 parts per million within a mile of the mill are common, the maximum concentration being about 4,500 parts per million with minimum a dissolved oxygen of 0. Generally surface waters are of poorer quality than are the middle and bottom waters. Sludge beds have been created through the deposition of fibers on the bottom, contributing to low D. O.'s and producing hydrogen sulfide.

There are three mills in the Everett area that have requested hearings; two discharging to Port Gardner Bay and one to the Snohomish River. Simpson Lee Paper Company has a kraft pulp mill, paper mill and deinking plant with a capacity of 145 tons/day. The mill discharges approximately 10,000,000 gallons per day of waste water to the Snohomish River that has a total solids content of approximately 200,000 pounds per day of which 35,000 pounds are suspended combustible solids. This is a population equivalent of 72,000 people. The Commission has requested that this mill remove the settleable solids from the effluent.

The major mills in this area are Weyerhaeuser Company and Scott Paper Co. discharging to Port Gardner Bay. The Weyerhaeuser mill is a 300 Ton/day sulphite pulp mill that has a waste water discharge of approximately 20,000,000 gallons and contains approximately 1,100,000 lbs. per day of total solids of which 13,000 pounds are suspended combustible solids. This mill has a population equivalent of approximately 1,300,000 people.

Scott Paper Company, which is located in close proximity to Weyerhaeuser, has a capacity of 875 Tons/day of sulphite pulp and 400 Tons/day of paper. The waste water discharge is about 90,000,000 gallons/day containing approximately 2,500,000 pounds of total solids of which 50,000 pounds are suspended combustible solids. This is a population equivalent of 3,500,000 people for this one mill. It can be seen that in the Everett area alone there is approximately 4,800,000 population equivalent contributed by these mills. This exceeds the population of the City of Los Angeles. The Commission has requested that both these mills recover digester cooking liquor and remove the settleable solids from the discharges.

It can be seen from the above figures that approximately 210,000,000 gallons per day of waste waters are discharged from these mills into the waters of Puget Sound and the Strait of Juan de Fuca, having a total population equivalent of roughly 8,400,000 people.

In 1955 and 1956 temporary waste disposal permits were issued requiring in general:

1. Firm proposals for recovery of sulphite waste liquor or reduction of BOD.

2. Removal of knotter and centricleaner rejects.

3. Outfall relocation.

Even with some improvements, increases in production have resulted in additional wastes negating the net effect of these installations. Unfortunately, the major pollutional load, sulphite waste liquor, remains virtually untouched.

Because of these conditions, in 1960, the Commission declared as policy -- the pulp and paper industry shall provide facilities which will fully protect all water users from process wastes.

Based on this policy, temporary permits were issued to ten members of the industry. Nine of these mills are presently contesting these permits.

OTHER PROBLEM AREAS

There are other problem areas of lesser significance, most of which are on definite correction programs with specific time schedules established.

These areas include:

1. Industrial pollution of the Nooksack River by canning and freezing operations.
2. Chemical and oil wastes from the Seattle-Tacoma Airport.
3. Hylebos Waterway in Tacoma - Chemical problem
4. City of Port Angeles
5. City of Anacortes
6. City of Tacoma
7. Sanitary wastes from ships and small boats.
8. Log booming and storage areas

SURVEY AND RESEARCH

The continual municipal and industrial growth and change in technology as applied to industrial processes results in everchanging characteristics of the waste effluents discharged to Puget Sound. In order to establish a basis for the evaluation and control of the effects of these discharges upon the surrounding water environment the Commission needs to expand its present program of survey and research.

A program of this nature should consider all phases of water quality i.e. the physical, chemical and biological aspects and their interrelationships. The program should include effluent analyses, adjacent water analyses, controlled condition research and the movement of the water mass so that the ultimate fate of the discharged wastes can be determined. This knowledge of water movement must not be confined to the immediate waste receiving area, but must include the entire Puget Sound water system. Also needed is a research evaluation of potential methods for the treatment or recovery of various industrial wastes.

Information of this nature is needed to carry on an effective program of pollution prevention and control so that all water uses may be fully protected.

SUMMARY

Within the Puget Sound basin virtually all water uses known demand fulfillment. The major uses are domestic and industrial water supplies, recreation, commercial and sports fisheries, boating, swimming, irrigation, navigation and power production.

Recognizing the high value of these waters for the noted uses, the State of Washington has instituted a program of maintaining the highest possible standards to insure the purity of all waters consistent with public health and public enjoyment thereof, the propagation and protection of wildlife, birds, game, fish and other aquatic life, and the industrial development of the State.

Accomplishment of this goal has progressed through construction of waste treatment facilities, both industrial and municipal.

The entrance of raw sewage to state waters, through municipal sewage systems, has been materiall reduced and with the completion of presently planned facilities discharges, with few exceptions, will be limited to sewage treatment plant effluents. Effluents which are presently discharging to Lake Washington will have been removed from the Lake for disposal outside the Lake Washington drainage basin.

The 1955 amendment to the State's Pollution Control Law, requiring industry to obtain waste disposal permits, assisted greatly in obtaining corrective and preventive pollution control facilities in industry. Most industries in the Puget Sound area have either complied with the requirements outlined by this Commission or are currently on a planned schedule to provide facilities which will prevent pollution of state waters. As it was at the conception of the Commission, pulp mill waste still remains as the Commission's main problem.

(Copies of Temporary Permits 400, 401, 402, 403, 405, 406, 408, 409 and 412 hereinafter included and numbered Pages 133-A to 133-R, inclusive.)

(Following material received on January 31, 1962 from the Washington State Pollution Control Commission by the Public Health Service, Portland, Oregon, herewith entered into the record and appended under "Appendix to Presentation on Behalf of Washington State Pollution Control Commission" as follows: Petition for Hearing (Permit T-400), Fibreboard Paper Products Corporation, as Appendix "A"; Application for

Hearing, Permit T-401, Puget Sound Pulp & Timber Co., as Appendix "B"; Petition of Rayonier, Incorporated, Permit T-402, as Appendix "C"; Petition of Scott Paper Company, Permit T-403, as Appendix "D"; Petition of Scott Paper Company, Permit T-405, as Appendix "E"; Application for Hearing, Weyerhaeuser Company, Permit T-406, as Appendix "F"; Notice of Appeal and Request for Hearing, Simpson Paper Co., Permits T-408 & T-409, as Appendix "G"; Petition of Scott Paper Company, Permit T-412, as Appendix "H".)

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Document entitled "List of Those Who Attended the Joint Federal-State Conference, January 16-17, 1962", herewith included in this record in Section of Appendix aforementioned as Appendix "I".

S. F. No. 8574—5-55—2M. 41901.

133-A

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION
OLYMPIA, WASHINGTON

Permit **T** **400**

In accordance with Chapter 71, Laws of 1955,
A WASTE DISCHARGE PERMIT is issued to:

Date of issue May 19, 1961

Date of expiration Nov. 24, 1963

Fibreboard Products, Incorporated
1313 Marine Drive
Port Angeles, Washington

Groundwood Mill
Sulphite Mill
Paper Mill

Waste not to exceed 5,200,000 gallons per day may be discharged to

Port Angeles Harbor, subject to the following conditions:

1. The word "waste" in the above statement refers to the total volume of cooling and contaminated waters to be discharged.

2. All waste effluent streams are to be combined and then discharged through a single outfall line to waters of the Strait of Juan de Fuca, such facilities to be installed and in use by the expiration date of this permit. (A determination shall be made of receiving water to determine the location and type of outfall structure which will provide satisfactory waste dilution).

3. Facilities for the storage of waste cooking liquors with provisions for continuous discharge of a uniform concentration and flow to the outfall sewer are to be installed and in use by the expiration date of this permit.

4. Facilities for automatic flow recording and sampling are to be installed on the outfall sewer by the expiration date of this permit.

5. Engineering plans for the above-mentioned facilities (permit conditions 2, 3, and 4) accompanied by pertinent supporting data are to be submitted to this Commission for review and approval by March 1, 1962.

6. A report of effluent characteristics is to be submitted monthly, based upon the analysis of composited effluent samples. This report shall contain the following information for each day of operation:

    1. Pulp production in tons;
    2. Waste flow in gallons;
    3. Suspended combustible solids losses in pounds;
    4. Total solids losses in pounds.

TEMPORARY

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the Commission finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of the conditions thereof; (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the Commission may specify additional conditions to this permit.

Signed:
Director, Pollution Control Commission

~~This permit does not in any way release the permittee from liability for damage to persons or property caused by or resulting from the discharge of waste.~~

THIS STATEMENT DELETED IN ACCORDANCE WITH
OCT. 8, 1957 DECISION OF THE POLLUTION CONTROL COMMISSION

7. The normal implant slime control program and procedures, in effect or as revised, shall be reported in detail giving chemical descriptions, amounts, and methods, and points of application for each slimeicide chemical used. Deviations from the above programs and procedures shall be noted on the monthly effluent report.

8. Sewage treatment facilities are to be installed or connection made to the municipal sewer system by the expiration date of this permit.

9. This permit is conditioned upon the continuous and efficient maintenance and operation of all existing waste recovery and pollution abatement facilities operated by or under the control of permittee.

   In the event of an emergency or condition beyond the control of the permittee, which prevents continuous operation of existing waste recovery and pollution abatement facilities, permittee shall:

   1. Immediately notify this Commission;
   2. Provide the Commission access to its facilities and all pertinent information as to cause of any interruption in operation of such waste recovery and pollution abatement facilities; and
   3. Submit such other information as the Commission may request from time to time thereafter.

10. The conditions under which this temporary permit has been extended are prescribed pursuant to Chapter 90.48 of the Revised Code of Washington and Section IV of Chapter 04.250 of the Rules of Practice and Procedure before the Pollution Control Commission.

11. In fixing the conditions under which this temporary permit has been extended the Commission has taken official notice of the matters of technical knowledge, notorious fact and business custom contained in its public records, "technical bulletins", and reports of permittees engaged in industrial operations in the affected areas.

12. Any alternative method for the removal and disposal of wastes which are equally effective to those required by conditions 2, 3, and 4 of this permit will be considered if submitted prior to January 1, 1962.

Director, Pollution Control Commission

. F. No. 8574—5-55—2M. 41901.

133-C

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION
OLYMPIA, WASHINGTON

Permit **T** 401

In accordance with Chapter 71, Laws of 1955,
A WASTE DISCHARGE PERMIT is issued to:

Date of issue **May 19, 1961**

Date of expiration **Nov. 24, 1963**

Puget Sound Pulp & Timber Co.
300 Laurel St.
Bellingham, Washington

Waste not to exceed **45,000,000** gallons per day may be discharged to

Bellingham Bay, subject to the following conditions:

TEMPORARY

1. The word "waste" in the above statement refers to the total volume of cooling and contaminated water to be discharged.

2. Facilities for the removal of settleable solids from all mill effluents are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other then to waters of the State.

3. Facilities for the removal of 85% (minimum) of the digester cooking liquor total solids are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other then to waters of the State.

4. Engineering plans for the above-mentioned facilities (permit conditions 2 and 3) accompanied by pertinent supporting data are to be submitted to this Commission for review and approval by March 1, 1962.

5. A report of effluent characteristics is to be submitted monthly, based upou the analysis of composited effluent samples. This report shall contain the following information for each day of operation:

1. Pulp production in tons.
2. Waste flow in gallons (for each sewer outfall).
3. Suspended combustible solids losses in pounds (for each sewer outfall).
4. Total solids losses in pounds (for each sewer outfall).

6. The normal inplant slime control program and procedures, in effect or as revised, shall be reported in detail giving chemical descriptions, amounts, and methods, and points of application for each slimeicide chemical used. Deviations from the above programs and procedures shall be noted on the monthly effluent report.

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the Commission finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of the conditions thereof; (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the Commission may specify additional conditions to this permit.

Signed: ....
Director, Pollution Control Commission

This permit does not in any way release the permittee from liability for damage to persons or property caused by or resulting from the discharge of waste.

3

THIS STATEMENT DELETED IN ACCORDANCE WITH
OCT. 8, 1957 DECISION OF THE POLLUTION CONTROL COMMISSION

7. The waste effluents shall be discharged through a continuously submerged outfall in such a manner as to minimise unsightly conditions in the vicinity.

8. Sanitary sewage is to be treated in continuously maintained sewage treatment facilities as previously approved by this Commission.

9. This permit is conditioned upon the continuous and efficient maintenance and operation of all existing waste recovery and pollution abatement facilities operated by or under the control of permittee.

   In the event of an emergency or condition beyond the control of the permittee, which prevents continuous operation of existing waste recovery and pollution abatement facilities, permittee shall:

   1. Immediately notify this Commission;
   2. Provide the Commission access to its facilities and all pertinent information as to cause of any interruption in operation of such waste recovery and pollution abatement facilities; and
   3. Submit such other information as the Commission may request from time to time thereafter.

10. The conditions under which this temporary permit has been extended are prescribed pursuant to Chapter 90:48 of the Revised Code of Washington and Section IV of Chapter 04.250 of the Rules of Practice and Procedure before the Pollution Control Commission.

11. In fixing the conditions under which this temporary permit has been extended the Commission has taken official notice of the matters of technical knowledge, notorious fact and business custom contained in its public records, "technical bulletins", and reports of permittees engaged in industrial operations in the affected areas.

12. Any alternative method for the removal and disposal of wastes which are equally effective to those required by conditions 2 and 3 of this permit will be considered if submitted prior to January 1, 1962.

Director, Pollution Control Commission

S. P. No. 8574—5-55—2M. 41901.

133-E

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION
OLYMPIA, WASHINGTON

Permit **T** **402**

In accordance with Chapter 71, Laws of 1955,
A WASTE DISCHARGE PERMIT is issued to:

Date of issue **May 19, 1961**

Date of expiration **Nov. 24, 1963**

Rayonier, Incorporated
Port Angeles Division
Port Angeles, Washington

Waste not to exceed **35,300,000** gallons per day may be discharged to

Port Angeles Harbor, subject to the following conditions:

TEMPORARY

1. The word "waste" in the above statement refers to the total volume of cooling and contaminated waters to be discharged.

2. Facilities for the removal of settleable solids from all mill effluents are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to waters of the State.

3. Facilities for the removal of 85% (minimum) of the digester cooking liquor total solids are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to waters of the State.

4. Engineering plans for the above-mentioned facilities (permit conditions 2 and 3) accompanied by pertinent supporting data are to be submitted to this Commission for review and approval by March 1, 1962.

5. A report of effluent characteristics is to be submitted monthly, based upon the analysis of composited effluent samples. This report shall contain the following information for each day of operation:

   1. Pulp production in tons.
   2. Waste flow in gallons (for each sewer outfall).
   3. Suspended combustible solids losses in pounds (for each sewer outfall).
   4. Total solids losses in pounds (for each sewer outfall).

6. The normal inplant slime control program and procedures, in effect or as revised, shall be reported in detail giving chemical descriptions, amounts, and methods, and points of application for each slimeicide chemical used. Deviations from the above programs and procedures shall be noted on the monthly effluent report.

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the Commission finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of the conditions thereof; (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the Commission may specify additional conditions to this permit.

Signed:
Director, Pollution Control Commission

This permit does not in any way release the permittee from liability for damage to persons or property caused by or resulting from the discharge of waste.

3

THIS STATEMENT DELETED IN ACCORDANCE WITH
OCT. 8, 1967 DECISION OF THE POLLUTION CONTROL COMMISSION

133-F

7. The waste effluents shall be discharged through a continuously submerged outfall in such a manner as to minimize unsightly conditions in the vicinity.

8. Sanitary sewage is to be treated in continuously maintained sewage treatment facilities or connection made to the municipal sewer system by the expiration date of this permit.

9. This permit is conditioned upon the continuous and efficient maintenance and operation of all existing waste recovery and pollution abatement facilities operated by or under the control of permittee.

   In the event of an emergency or condition beyond the control of the permittee, which prevents continuous operation of existing waste recovery and pollution abatement facilities, permittee shall:

   1. Immediately notify this Commission;
   2. Provide the Commission access to its facilities and all pertinent information as to cause of any interruption in operation of such waste recovery and pollution abatement facilities; and
   3. Submit such other information as the Commission may request from time to time thereafter.

10. The conditions under which this temporary permit has been extended are prescribed pursuant to Chapter 90.48 of the Revised Code of Washington and Section IV of Chapter 04.250 of the Rules of Practice and Procedure before the Pollution Control Commission.

11. In fixing the conditions under which this temporary permit has been extended the Commission has taken official notice of the matters of technical knowledge, notorious fact and business custom contained in its public records, "technical bulletins", and reports of permittees engaged in industrial operations in the affected areas.

12. Any alternative method for the removal and disposal of wastes which are equally effective to those required by conditions 2 and 3 of this permit will be considered if submitted prior to January 1, 1962.

Director, Pollution Control Commission

133-G

S. F. No. 8574—5-55—2M. 41901.

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION
OLYMPIA, WASHINGTON

Permit **T** 403

In accordance with Chapter 71, Laws of 1955,
A WASTE DISCHARGE PERMIT is issued to:

Date of issue May 19, 1961

Date of expiration Nov. 24, 1963

Scott Paper Company
Pulp Mill
West Coast Division
Everett, Washington

Waste not to exceed 77,000,000 gallons per day may be discharged to

Port Gardner Bay, subject to the following conditions:

1. The word "waste" in the above statement refers to the total volume of cooling and contaminated waters to be discharged.

2. Facilities for the removal of settleable solids from all mill effluents are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to waters of the State.

3. Facilities for the removal of 85% (minimum) of the digester cooking liquor total solids are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to waters of the State.

4. Engineering plans for the above-mentioned facilities (permit conditions 2 and 3) accompanied by pertinent supporting data are to be submitted to this Commission for review and approval by March 1, 1962.

5. A report of effluent characteristics is to be submitted monthly, based upon the analysis of composited effluent samples. This report shall contain the following information for each day of operation;

    1. Pulp production in tons;
    2. Waste flow in gallons (for each sewer outfall);
    3. Suspended combustible solids losses in pounds (for each sewer outfall);
    4. Total solids losses in pound (for each sewer outfall).

6. The normal implant slime control program and procedures, in effect or as revised, shall be reported in detail giving chemical descriptions, amounts, and methods, and points of application for each slimeicide chemical used. Deviations from the above programs and procedures shall be noted on the monthly effluent report.

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the Commission finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of the conditions thereof; (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the Commission may specify additional conditions to this permit.

Signed:
Director, Pollution Control Commission

This permit does not in any way release the permittee from liability for damage to persons or property caused by or resulting from the discharge of waste.

3

THIS STATEMENT DELETED IN ACCORDANCE WITH
OCT. 8, 1957 DECISION OF THE POLLUTION CONTROL COMMISSION

Scott Paper Company
Pulp Mill
West Coast Division
Everett, Washington

Permit T 403

May 19, 1961
Nov. 24, 1963

7. Mill effluents are to be combined and discharged through a submerged outfall at a depth and location necessary to provide maximum initial dilution.

8. Sanitary sewage is to be treated in continuously maintained sewage treatment facilities or connection made to the municipal sewer system by the expiration date of this permit.

9. This permit is conditioned upon the continuous and efficient maintenance and operation of all existing waste recovery and pollution abatement facilities operated by or under the control of permittee.

   In the event of an emergency or condition beyond the control of the permittee, which prevents continuous operation of existing waste recovery and pollution abatement facilities, permittee shall:

   1. Immediately notify this Commission;
   2. Provide the Commission access to its facilities and all pertinent information as to cause of any interruption in operation of such waste recovery and pollution abatement facilities; and
   3. Submit such other information as the Commission may request from time to time thereafter.

10. The conditions under which this temporary permit has been extended are prescribed pursuant to Chapter 90.48 of the Revised Code of Washington and Section IV of Chapter 04.250 of the Rules of Practice and Procedure before the Pollution Control Commission.

11. In fixing the conditions under which this temporary permit has been extended the Commission has taken official notice of the matters of technical knowledge, notorious fact and business custom contained in its public records, "technical bulletins", and reports of permittees engaged in industrial operations in the affected areas.

12. Any alternative method for the removal and disposal of wastes which are equally effective to those required by conditions 2 and 3 of this permit will be considered if submitted prior to January 1, 1962.

Art Garton

Director, Pollution Control Commission

S. F. No. 8574—5-55—2M. 41901.

133-I

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION
OLYMPIA, WASHINGTON

Permit **T** 405

In accordance with Chapter 71, Laws of 1955,
A WASTE DISCHARGE PERMIT is issued to:

Date of issue **May 19, 1961**

Date of expiration **Nov. 24, 1963**

Scott Paper Company
Paper Mill
West Coast Division
Everett, Washington

Waste not to exceed **12,300,000** gallons per day may be discharged to

Port Gardner Bay, subject to the following conditions:

TEMPORARY

1. **The word "waste" in the above statement refers to the total volume of cooling and contaminated waters to be discharged.**

2. **Facilities for the removal of settleable solids from all mill effluents are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to waters of the State.**

3. **Engineering plans for the above-mentioned facilities (permit condition 2) accompanied by pertinent supporting data, are to be submitted to this Commission for review and approval by March 1, 1962.**

4. **A report of effluent characteristics is to be submitted monthly, based upon the analysis of composited effluent samples. This report shall contain the following information for each day of operation:**

   1. **Pulp production in tons;**
   2. **Waste flow in gallons (for each sewer outfall);**
   3. **Suspended combustible solids losses in pounds (for each sewer outfall);**
   4. **Total solids losses in pounds (for each sewer outfall).**

5. **The normal inplant slime control program and procedures, in effect or as revised, shall be reported in detail giving chemical descriptions, amounts, and methods, and points of application for each slimicide chemical used. Deviations from the above programs and procedures shall be noted on the monthly effluent report.**

6. **Mill effluents are to be combined and discharged through a submerged outfall at a depth and location necessary to provide maximum initial dilution.**

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the Commission finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of the conditions thereof; (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the Commission may specify additional conditions to this permit.

Signed: ....
Director, Pollution Control Commission

This permit does not in any way release the permittee from liability for damage to persons or property caused by or resulting from the discharge of waste.

THIS STATEMENT DELETED IN ACCORDANCE WITH
OCT. 8, 1957 DECISION OF THE POLLUTION CONTROL COMMISSION

Reproduced from best available copy.

Scott Paper Company
Paper Mill
West Coast Division
Everett, Washington

Permit T 405

May 19, 1961
Nov. 24, 1963

7. Sanitary sewage is to be treated in continuously maintained sewage treatment facilities or connection made to the municipal sewer system by the expiration date of this permit.

8 This permit is conditioned upon the continuous and efficient maintenance and operation of all existing waste recovery and pollution abatement facilities operated by or under the control of permittee.

In the event of an emergency or condition beyond the control of the permittee, which prevents continuous operation of existing waste recovery and pollution abatement facilities permittee shall:

1. Immediately notify this Commission;
2. Provide the Commission access to its facilities and all pertinent information as to cause of any interruption in operation of such waste recovery and pollution abatement facilities; and
3. Submit such other information as the Commission may request from time to time thereafter.

9. The conditions under which this temporary permit has been extended are prescribed pursuant to Chapter 90.48 of the Revised Code of Washington and Section IV of Chapter 96.250 of the Rules of Practice and Procedure before the Pollution Control Commission.

10. In fixing the conditions under which this temporary permit has been extended the Commission has taken official notice of matters of technical knowledge, notorious fact and business custom contained in its public records, "technical bulletins", and reports of permittees engaged in industrial operations in the affected areas.

11. Any alternative method for the removal and disposal of wastes which are equally effective to those required by condition 2 of this permit will be considered if submitted prior to January 1, 1962.

Art Garton

Director, Pollution Control Commission

133-K

S. F. No. 8574—5-55—2M. 41901.

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION
OLYMPIA, WASHINGTON

Permit **T** 406

In accordance with Chapter 71, Laws of 1955,
A WASTE DISCHARGE PERMIT is issued to:

Date of issue May 19, 1961

Date of expiration Nov. 24, 1963

Weyerhaeuser Company
Pulp Division - Sulfite Mill
Everett, Washington

Waste not to exceed 28,000,000 gallons per day may be discharged to

Port Gardner Bay, subject to the following conditions:

1. The word "waste" in the above statement refers to the total volume of cooling and contaminated waters to be discharged.

2. Facilities for the removal of settleable solids from all mill effluents are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to the waters of the State.

3. Facilities for the removal of 85% (minimum) of the digester cooking liquor total solids are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to waters of the State.

4. Engineering plans for the above-mentioned facilities (permit conditions 2 and 3) accompanied by pertinent supporting data are to be submitted to this Commission for review and approval by March 1, 1962.

5. A report of effluent characteristics is to be submitted monthly, based upon the analysis of composited effluent samples. This report shall contain the following information for each day of operation:

   1. Pulp production in tons.
   2. Waste flow in gallons (for each sewer outfall).
   3. Suspended combustible solids losses in pounds (for each sewer outfall).
   4. Total solids losses in pounds (for each sewer outfall).

TEMPORARY

6. The normal inplant slime control program and procedures, in effect or as revised, shall be reported in detail giving chemical descriptions, amounts, and methods, and points of application for each slimicide chemical used. Deviations from the above programs and procedures shall be noted on the monthly effluent report.

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the Commission finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of the conditions thereof; (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the Commission may specify additional conditions to this permit.

Signed: ______________________
Director, Pollution Control Commission

This permit does not in any way release the permittee from liability for damage to persons or property caused by or resulting from the discharge of waste.

THIS STATEMENT EFFECTED IN ACCORDANCE WITH
OCT. 8, 1957 DECISION OF THE POLLUTION CONTROL COMMISSION

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133-L

Weyerhaeuser Company
Pulp Division - Sulfite Mill
Everett, Washington

T-406

May 19, 1961
Nov. 24, 1963

7. Mill effluents are to be combined and discharged through a submerged outfall at a depth and location necessary to provide maximum initial dilution.

8. Sanitary sewage is to be treated in continuously maintained sewage treatment facilities or connection made to the municipal sewer system by the expiration date of this permit.

9. This permit is conditioned upon the continuous and efficient maintenance and operation of all existing waste recovery and pollution abatement facilities operated by or under the control of permittee.

   In the event of an emergency or condition beyond the control of the permittee, which prevents continuous operation of existing waste recovery and pollution abatement facilities, permittee shall:

   1. Immediately notify this Commission;
   2. Provide the Commission access to its facilities and all pertinent information as to cause of any interruption in operation of such waste recovery and pollution abatement facilities; and
   3. Submit such other information as the Commission may request from time to time thereafter.

10. The conditions under which this temporary permit has been extended are prescribed pursuant to Chapter 90.48 of the Revised Code of Washington and Section IV of Chapter 94.250 of the Rules of Practice and Procedure before the Pollution Control Commission.

11. In fixing the conditions under which this temporary permit has been extended the Commission has taken official notice of the matters of technical knowledge, notorious fact and business custom contained in its public records, "technical bulletins", and reports of permittees engaged in industrial operations in the affected areas.

12. Any alternative method for the removal and disposal of wastes which are equally effective to those required by conditions 2 and 3 of this permit will be considered if submitted prior to January 1, 1962.

Art Easton

Director, Pollution Control Commission

133-M

F. No. 8574—5-55—2M. 41901.

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION
OLYMPIA, WASHINGTON

Permit **T** 408

In accordance with Chapter 71, Laws of 1955,
A WASTE DISCHARGE PERMIT is issued to:

Date of issue May 19, 1961

Date of expiration Nov. 24, 1963

Simpson-Lee Paper Co.
P. O. Box 1008 Pulp Mill
Everett, Washington Paper Mill

Waste not to exceed 10,000,000 gallons per day may be discharged to

the Snohomish River, subject to the following conditions:

1. The word "waste" in the above statement refers to the total volume of cooling and contaminated waters to be discharged.

2. Facilities for the removal of settleable solids from all mill effluents are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to the waters of the State.

3. Engineering plans for the above-mentioned facilities (permit condition 2) accompanied by pertinent supporting data are to be submitted to this Commission for review and approval by March 1, 1962.

4. A report of effluent characteristics is to be submitted monthly, based upon the analysis of composited effluent samples. This report shall contain the following information for each day of operation:

    1. In tons--finished paper, bleached pulp, de-inked magazines.
    2. Waste flow in gallons (for each sewer outfall).
    3. Suspended combustible solids losses in pounds (for each sewer outfall).
    4. Total solids losses in pounds (for each sewer outfall).

5. The normal implant slime control program and procedures, in effect, or as revised, shall be reported in detail giving chemical descriptions, amounts, and methods, and points of application for each slimeicide chemical used. Deviations from the above programs and procedures shall be noted on the monthly effluent report.

TEMPORARY

6. Chemical recovery facilities shall be capable of adequately recovering waste cooking liquor chemicals.

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the Commission finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of the conditions thereof; (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the Commission may specify additional conditions to this permit.

Signed: ....
Director, Pollution Control Commission

This permit does not in any way release the permittee from liability for damage to persons or property caused by or resulting from the discharge of waste.

3

THIS STATEMENT DELETED IN [illegible]
OCT 8, 1957 DECISION OF THE [illegible]

7. The waste effluents shall be discharged through a continuously submerged outfall in such a manner as to minimize unsightly conditions in the vicinity.

8. Facilities for the treatment of all sanitary sewage are to be installed and in use by the expiration date of this permit.

9. This permit is conditioned upon the continuous and efficient maintenance and operation of all existing waste recovery and pollution abatement facilities operated by or under the control of permittee.

   In the event of an emergency or condition beyond the control of the permittee, which prevents continuous operation of existing waste recovery and pollution abatement facilities, permittee shall:

   1. Immediately notify this Commission;
   2. Provide the Commission access to its facilities and all pertinent information as to cause of any interruption in operation of such waste recovery and pollution abatement facilities; and
   3. Submit such other information as the Commission may request from time to time thereafter.

10. The conditions under which this temporary permit has been extended are prescribed pursuant to Chapter 90.48 of the Revised Code of Washington and Section IV of Chapter 04.250 of the Rules and Practice and Procedure before the Pollution Control Commission.

11. In fixing the conditions under which this temporary permit has been extended the Commission has taken official notice of the matters of technical knowledge, notorious fact and business custom contained in its public records, "technical bulletins", and reports of permittees engaged in industrial operations in the affected areas.

12. Any alternative method for the removal and disposal of wastes which are equally effective to those required by condition 2 of this permit will be considered if submitted prior to January 1, 1962.

Director, Pollution Control Commission

133-0

S. F. No. 8574—5-55—2M. 41901.

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION
OLYMPIA, WASHINGTON

Permit **T** 409

In accordance with Chapter 71, Laws of 1955,
A WASTE DISCHARGE PERMIT is issued to:

Date of issue May 19, 1961

Date of expiration Nov. 24, 1963

Simpson-Lee Paper Co.
P. O. Box 1008 De-inking Plant
Everett, Washington

Waste not to exceed 2,000,000 gallons per day may be discharged to the Snohomish River, subject to the following conditions:

1. The word "waste" in the above statement refers to the total volume of cooling and contaminated waters to be discharged.

2. Facilities for the removal of settleable solids from all mill effluents are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to the waters of the State.

3. Engineering plans for the above-mentioned facilities (permit condition 2) accompanied by pertinent supporting data are to be submitted to this Commission for review and approval by March 1, 1962.

4. A report of effluent characteristics is to be submitted monthly, based upon the analysis of composited effluent samples. This report shall contain the following information for each day of operation:

   1. In tons--finished paper, bleached pulp, de-inked magazines.
   2. Waste flow in gallons (for each sewer outfall).
   3. Suspended combustible solids losses in pounds (for each sewer outfall).
   4. Total solids losses in pounds (for each sewer outfall)

TEMPORARY

5. The normal inplant slime control program and procedures, in effect or as revised, shall be reported in detail giving chemical descriptions, amounts, and methods, and points of application for each slimeicide chemical used. Deviations from the above programs and procedures shall be noted on the monthly effluent report.

6. The waste effluents shall be discharged through a continuously submerged outfall in such a manner as to minimize unsightly conditions in the vicinity.

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the Commission finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of the conditions thereof; (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the Commission may specify additional conditions to this permit.

Signed:
Director, Pollution Control Commission

~~This permit does not in any way release the permittee from liability for damage to persons or property caused by or resulting from the discharge of waste.~~

THIS STATEMENT DELETED IN ACCORDANCE WITH
OCT. 8, 1957 DECISION OF THE POLLUTION CONTROL COMMISSION

Simpson-Lee Paper Company T - 409
P. O. Box 1008 De-inking Plant
Everett, Washington

May 19, 1961
Nov. 24, 1963

7. Facilities for the treatment of all sanitary sewage are to be installed and in use by the expiration date of this permit.

8. This permit is conditioned upon the continuous and efficient maintenance and operation of all existing waste recovery and pollution abatement facilities operated by or under the control of permittee.

   In the event of an emergency or condition beyond the control of the permittee, which prevents continuous operation of existing waste recovery and pollution abatement facilities, permittee shall:

   1. Immediately notify this Commission;
   2. Provide the Commission access to its facilities and all pertinent information as to cause of any interruption in operation of such waste recovery and pollution abatement facilities; and
   3. Submit such other information as the Commission may request from time to time thereafter.

9. The conditions under which this temporary permit has been extended are prescribed pursuant to Chapter 90.48 of the Revised Code of Washington and Section IV of Chapter 04.250 of the Rules of Practice and Procedure before the Pollution Control Commission.

10. In fixing the conditions under which this temporary permit has been extended the Commission has taken official notice of the matters of technical knowledge, notorious fact and business custom contained in its public records, "technical bulletins", and reports of permittees engaged in industrial operations in the affected areas.

11. Any alternative method for the removal and disposal of wastes which are equally effective to those required by condition 2 of this permit will be considered if submitted prior to January 1, 1962.

Director, Pollution Control Commission

S. P. No. 8574—5-55—2M. 41901.

133-Q

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION
OLYMPIA, WASHINGTON

Permit **T** 412

In accordance with Chapter 71, Laws of 1955,
A WASTE DISCHARGE PERMIT is issued to:

Date of issue May 19, 1961

Date of expiration Nov. 24, 1963

Scott Paper Company
P. O. Box 190
Anacortes, Washington

Waste not to exceed 8,710,000 gallons per day may be discharged to Guemes Channel and temporarily to Fidalgo Bay, subject to the following conditions:

1. The word "waste" in the above statement refers to the total volume of cooling and contaminated waters to be discharged. (With exception of salt water coolant which now goes to Fidalgo Bay.)

2. All waste effluent streams are to be combined and then discharged through a single outfall line to waters of Guemes Channel; such facilities to be installed and in use by the expiration date of this permit.

3. Facilities for the storage of waste cooking liquors with provisions for continuous discharge of a uniform concentration and flow to the outfall sewer are to be installed and in use by the expiration date of this permit.

4. Facilities for automatic flow recording and sampling are to be installed on the outfall sewer by the expiration date of this permit.

5. Engineering plans for the above-mentioned facilities (permit conditions 2, 3, and 4) accompanied by pertinent supporting data are to be submitted to this Commission for review and approval by March 1, 1962.

6. A report of effluent characteristics is to be submitted monthly, based upon the analysis of composited effluent samples. This report shall contain the following information for each day of operation:

   1. Pulp production in tons.
   2. Waste flow in gallons (for each sewer outfall).
   3. Suspended combustible solids losses in pounds (for each sewer outfall).
   4. Total solids losses in pounds (for each sewer outfall).

TEMPORARY

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the Commission finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of the conditions thereof; (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the Commission may specify additional conditions to this permit.

Signed: Art Garton
Director, Pollution Control Commission

This permit does not in any way release the permittee from liability for damage to persons or property caused by or resulting from the discharge of waste.

THIS STATEMENT DELETED IN ACCORDANCE WITH
[illegible] 8, 1957 DECISION OF THE POLLUTION CONTROL COMMISSION

7. The normal inplant slime control program and procedures, in effect or as revised, shall be reported in detail giving chemical descriptions, amounts, and methods, and points of application for each slimicide chemical used. Deviations from the above programs and procedures shall be noted on the monthly effluent report.

8. The waste effluents shall be discharged through a continuously submerged outfall in such a manner as to minimize unsightly conditions in the vicinity.

9. Sanitary sewage is to be treated in continuously maintained sewage treatment facilities as approved by this Commission.

10. This permit is conditioned upon the continuous and efficient maintenance and operation of all existing waste recovery and pollution abatement facilities operated by or under the control of permittee.

    In the event of an emergency or condition beyond the control of the permittee, which prevents continuous operation of existing waste recovery and pollution abatement facilities, permittee shall:

    1. Immediately notify this Commission;
    2. Provide the Commission access to its facilities and all pertinent information as to cause of any interruption in operation of such waste recovery and pollution abatement facilities; and
    3. Submit such other information as the Commission may request from time to time thereafter.

11. The conditions under which this temporary permit has been extended are prescribed pursuant to Chapter 90.48 of the Revised Code of Washington and Section IV of Chapter 04.250 of the Rules of Practice and Procedure before the Pollution Control Commission.

12. In fixing the conditions under which this temporary permit has been extended the Commission has taken official notice of the matters of technical knowledge, notorious fact and business custom contained in its public records, "technical bulletins", and reports of permittees engaged in industrial operations in the affected areas.

13. Any alternative method for the removal and disposal of wastes which are equally effective to those required by conditions 2, 3 and 4 of this permit will be considered if submitted prior to January 1, 1962.

Director, Pollution Control Commission

(Following letter from Industrial Wastes Bio-Research, Inc., Dr. Charles P. Larson, M.D., Director, Forensic Biology, received by Public Health Service, Water Supply and Water Pollution Control, PNW, Portland, Oregon, on January 24, 1962, herewith entered into the record as follows:)

E. M. WOOD, Ph.D., M.D.
Director, Biological Research

CHARLES P. LARSON, M.D.
Director, Forensic Biology

NEIL J. HOFF, LL.B.
Legal Counsel

TACOMA MEDICAL CENTER
1206 S. 11th Street, Unit 9A
TACOMA 5, WASHINGTON

PHONE BR 2-8277

INDUSTRIAL WASTES BIO-RESEARCH, INC.

January 18, 1962

Mr. Earl Coe, Chairman
Washington State Pollution Control Commission
State Capitol
Olympia, Washington

Dear Mr. Coe:

This statement is submitted by Industrial Wastes Bio-Research in an attempt to provide a mechanism for study, evaluation, and solution of the complex industrial waste and water quality problems in the Pacific Northwest. Industrial Wastes Bio-Research was organized by Dr. Larson and Dr. Wood to provide biological research and water quality monitoring, utilizing techniques of established value in the field of medicine which are not now commonly employed in the fishery field.

For years the state, municipal and federal agencies have individually approached this problem. Government fish biologists have traditionally charged industry with ruining the fish program. Large industrial concerns have hired their own specialists to declare their innocence of pollution. Both Dr. Wood and Dr. Larson have served as consultants on both sides of this most difficult dilemma. It became apparent to us five years ago that a complete solution of the problem would not be attained unless some independent agency was established to moderate the divergent reports and conclusions. To the best of our knowledge, Dr. Wood is the only Ph.D. in fish biology in America who holds an M.D. degree and is also a specialist in human pathology. Dr. Larson is a recognized specialist in human pathology; is Past President of the College of American Pathologists, or equivalent of President of the A.M.A. in this specialty field. Both have done research for years in the area of fish and shellfish pathology. The laboratory in Tacoma is currently working under two Federal grants in the field of fish pathology. An independent scientific study is imminently necessary unless we lose our vast fish resources and/or our booming industrial future. The age-old political solution to this problem is not practical. We propose to obviate this with wellfounded research based conclusions and let the chips fall where they may.

The intelligent management of waste disposal has been greatly complicated by the controversy between industry, pollution control authorities, fishery agencies, and the public. The primary basis of this controversy appears to be the inadequate amount of biological research on the effects of pollution on aquatic species and human beings. Almost all research and monitoring has been carried out by the same agencies who are also responsible for enforcement. The dedication and contributions of individuals associated with these studies are not questioned, but there can be little doubt that the effectiveness and acceptability of such work is greatly diminished by the enforcement interests of the sponsoring agencies.

The specific topics under discussion at this conference are all concerned with pollution in Puget Sound and the Straits of Juan de Fuca. It must be recognized that sufficient scientific information is lacking to even adequately define and recognize pollution when it occurs, much less to reach decisions concerning abatement.

This statement has been prepared to submit specific constructive recommendations. These are:

1) An intelligent independent program of research to define the relationship between industrial, municipal,

and agricultural pollution and aquatic life and human beings should be organized.

2) A constant biological monitoring program at all strategic points in Puget Sound and the Straits of Juan de Fuca and in the major tributaries to these areas should be established.

3) An organization responsible for the immediate investigation of fish or shellfish kills at any point in the Pacific Northwest should be utilized.

4) The above functions should not be completely under the direction and control of State and Federal agencies also concerned with enforcement policies. Conversely, the program should not be directed by industry.

To implement each of these recommendations the following discussion has been prepared.

An entirely new approach is needed to define the relationship between polluting materials in water and the aquatic species found therein. Such an approach is offered by the application of certain diagnostic techniques now widely used in medicine, particularly those of pathology. By carefully designed studies, it is entirely possible to fully evaluate the effect of all polluting materials on fish and shellfish even though such materials are not immediately lethal. The ability to diagnose and identify precise factors responsible for the failure of fish and shellfish to survive to maturity would be of tremendous value to conservation agencies. Such techniques would be of equal value to industry since they would permit the control of specific inimical materials instead of total discharges.

Pathology studies have been the basis of research on human disease and toxicity problems for over a century. In the last fifteen years such methods have led to great forward strides in the field of veterinary medicine. It is only logical that they can contribute the same progress to the field of aquatic biology.

Such studies are neither simple nor inexpensive. Fish and shellfish must be meticulously exposed to varying concentrations of specific chemicals found in industrial discharges, to herbicides and insecticides, and to the components of municipal discharges. The changes produced in tissues and cells by these materials must be observed and recorded by persons trained in pathology. Only by methods such as these is it possible to say that a specific pollutant is inimical or harmless; and only then can abatement be intelligently discussed.

A constant biological monitoring program is essential. In this work, fish are exposed at strategic times and locations to guarantee that resident populations are not being damaged. While the occurrence of mortality in such studies is important, it is secondary to the pathologic studies which will determine whether the test fish are sustaining unseen and unsuspected damage. The monitoring programs will, in addition, pinpoint the exact source of potential toxicity or mortality. On any tributary, for example, fish should be examined during every phase of their natural life cycles including the time spent in the hatchery for disease, parasitism or nutritionally induced problems. Agricultural and municipal discharges must each be carefully examined and evaluated for the increment of damage which they may contribute.

The importance of investigating acute fish and shellfish mortalities cannot be overemphasized. In the past this has been done by inadequate and often greatly delayed examinations of the water and surrounding environment. To correct this problem an organization such as ours is needed which will be available twenty-four hours a day for instantaneous action when notified of a fish kill. The most important information from such a mortality is the dead and dying fish themselves. In the hands of a competent pathologist such specimens will reveal the cause of death, and therefore the eventual eradication of the problem.

As stated before, all such work should be done by an organization which is completely divorced from enforcement on either a State or Federal level. Ideally the same concept should apply to industry, to any specific and interested municipality, and to any agricultural organization associated with pollution problems. This implies, therefore, that all groups concerned with pollution should jointly finance a disinterested, independent, research organization charged with the collection of factual information. The information thus derived should be available to all and should be the basis for both voluntary and required abatement regulations.

It should be recognized at the outset that this is not a one-year or two-year and probably not a five-year program, but is in essence a continuous program of research and surveillance designed to protect Northwest waters.

Foremost experts in the fields of marine biology and pathology will be utilized. Experts already employed by federal, state, municipal and private agencies are being used as consultants. Initial contacts in these areas have already been made and have been enthusiastically received.

(Following data received on February 20, 1962, from the Washington State Pollution Control Commission by the Public Health Service, Portland, Oregon, herewith copied into the record as follows:

Additional information submitted by the Washington Pollution Control Commission.

Federal installations located within the Puget Sound Area which are not in compliance with the requirements of the Washington Pollution Control Commission as of January 16, 1962.

These are as follows: Puget Sound Naval Shipyard, Bremerton, Washington; McChord Air Force Base, Tacoma, Washington; McNeil Island Penitentiary; Sand Point Naval Air Station, Seattle, Washington.)

(Following data submitted by the Washington State Pollution Control Commission herewith entered into the record as follows:)

STATEMENT OF IMPORTANT DATES

PULP & PAPER INDUSTRY WASTE DISPOSAL PROBLEM

1940-1943 - Series of state-wide investigations and conferences related to pulp mill pollution problems.

1944 - Establishment of the Pulp Mills Research Program at the University of Washington after a long series of conferences among representatives of the Pulp and Paper Industry, representatives of State Government, and the University. The project was to be concerned with more complete utilization of forest growth and stream improvement and has continued until the present time.

1951 - Orders requesting the treatment or recovery of sulfite waste liquor issued by the Pollution Control Commission to the following sulfite pulp mills at Everett, Washington.

The Weyerhaeuser Company

The Soundview Pulp & Timber Co. (now Scott Paper Co.)

The deep water diffusor which was constructed as a result of these orders was approved for 3 years with the understanding that recovery systems would be installed.

1955 - A standard agreement between the Pulp and Paper Industry and the Director of the Pollution Control Commission was reached with respect to effluent monitoring and reporting allowable losses of suspended combustible solids sulfite pulp mill effluent requirements to be established at each mill.

1956 - Temporary waste discharge permits were issued to the sulfite mills which included requests for the preparation of plans and proposals involving the treatment or disposal of sulfite waste liquors. These permits had an expiration date of one year after issuance.

1957 - The one year temporary waste discharge permits were extended for one year based upon mill committments to continue the existing research or investigation effort being followed with reference to the disposal treatment or utlization of sulfite waste liquor.

1958 - Expiring temporary waste discharge permits issued to sulfite pulp mills and the Simpson-Lee Paper Co. were extended on an indefinite basis.

1960 - Adoption of Policy Statement 04:252

1961 - Issuance of the temporary waste discharge permits which are presently being contested.

Filing of requests for hearings by pulp mill permittees and the initiation of action through the adminstrative practices act.

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WASHINGTON STATE POLLUTION CONTROL COMMISSION

COMPREHENSIVE PROGRAM

.04.200-.290 Standards, Rules, Regulations, Requirements and Specifications

.04.210 The following Standards for Waters of the State of Washington have been adopted by the Pollution Control Commission:

STANDARDS FOR WATERS OF THE STATE OF WASHINGTON

Water standards have occupied the attention of state officials concerned with the protection of health and recreation and the conservation of natural resources. Scientists interested in problems of pollution recognize and accept certain general water standards. These have been selected as the initial standards applicable in our state. In specific instances there may be additional requirements necessitated by the facts as revealed through careful investigations. Since we are concerned with fresh, tidal and salt waters, these standards have been set up to apply to these types of waters.

DEFINITIONS

For the purpose of these standards the terms used are defined as follows:

"Sewage" -- The water-carried waste products or discharge from human beings or other wastes from residences, public or private buildings, together with such ground, surface, or storm water as may be present.

"Industrial Wastes"-- The liquids, solids or other wastes resulting from any process of industry, manufacture, trade or business, or from the development of any natural resource.

"Waters of the State" -- The lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the State of Washington.

"Fishes and Related Forms" -- Includes chiefly all fishes, crustacea, mollusks, plankton, higher aquatic plants and waterfowl.

STANDARDS

1. No sewage or industrial waste shall be discharged into any of the waters of the State that will cause:
   - (a) The reduction of the dissolved oxygen content to less than five parts per million (5 p.p.m.)
   - (b) The hydrogen-ion concentration (pH) to be outside of the range of 6.5 to 8.5.
   - (c) The liberation of dissolved gases, such as carbon-

dioxide, hydrogen sulphide or any other gases in sufficient quantities to be deleterious to fishes or related forms.

(d) The development of fungi or other growth having a deleterious effect on stream bottoms, fishes and related forms or be injurious to health, recreation or industry.

(e) Toxic conditions that are deleterious to fishes and related forms or affect the potability of drinking water.

(f) The formation of organic or inorganic deposits detrimental to fishes and related forms, or be injurious to health, recreation and industry.

(g) Discoloration, turbidity, scum, oily sleek, floating solids, or coat the aquatic life with oily films, or be injurious to health, recreation or industry.

(h) The temperatures to be raised above the limit of tolerance of fishes and related forms.

2. In those waters which are used or reasonably suitable for use as drinking water supplies, shellfish culture, bathing, or in other instances where its use presents a definite public health hazard by presence or potential presence of disease-producing organisms, the median bacteriological content of a representative number of samples shall not show the presence of coliform organisms

in excess of 50 per 100 ml. expressed in terms of the most probable number, provided that the sanitary survey reveals that bacterial content is of human origin.

(a) In other instances where the use of water presents a public health hazard by the presence or potential presence of disease producing organisms, the median bacteriological content of a representative number of samples shall not show the presence of coliform organisms in excess of 240 (M.P.N.) per 100 ml provided that the sanitary survey reveals that the bacteriological content is of human origin.

MR. BERGERSON: In addition to this, we also have statements by other departments of our State Government. Some of them are from the departments which are included in the Pollution Control Commission and some are other departments. We have listed these under statements by Pollution Control Commission designees.

First, I'm going to call on Mr. Cedric Lindsay of the State Fisheries Department to present a statement on behalf of his Department.

STATEMENT ON BEHALF OF WASHINGTON STATE DEPARTMENT OF FISHERIES

(By Mr. Cedric Lindsay)

MR. LINDSAY: Thank you. I am Cedric Lindsay of the Washington Department of Fisheries, presenting a statement for our Director, Mr. Starlund.

The Fisheries Code of the State of Washington prescribes that the Director of the Department of Fisheries shall enforce the laws and regulations relating to propagation, protection, conservation, preservation and management of food fish and shellfish. These laws and regulations are aimed at achieving maximum sustained production from our fishery resources. The Director of Fisheries is also responsible for operation of several oyster reserves in Puget Sound. General duties of the Director therefore require that he institute investigations into natural and man-caused conditions which affect optimum production of food fish and shellfish.

The Director of Fisheries is also a member of the Washinton Pollution Control Commission, which has the power under Chapter 216, Laws of 1945, and Chapter 71, Laws of 1955, to make and enforce rules and regulations and issue permits relative to control of pollution in the waters of the state. The Department of Fisheries conducts basic research on pollution and makes investigations of specific pollution problems. The results of these researches and investigations and recommendations for the correction of problems, are presented to the Pollution Control Commission for their consideration.

FISH AND SHELLFISH RESOURCES -- Marine waters of Puget Sound, the Straits of Juan de Fuca and adjoining freshwater areas contain sixty-four species of fish and twenty-nine species of shellfish classified as food fish. Most of these are harvested for both commercial and recreational purposes. Important stocks of fish utilizing the Puget Sound basin include salmon, herring, bottom fish of many varieties, true cod, rockfish, Dungeness crab, shrimp, scallops, oysters and clams.

Most of these species fit into specific environmental niches. Salmon are anadromous and use both fresh and salt water. In salt water, they are pelagic, and at various stages of development, move throughout the entire basin into the ocean. Herring both live and spawn in inner bays. Smelt follow a similar pattern and require clean gravel beaches for spawning. Sole, flounder, true cod, rockfish, perch, ling cod and greenling inhabit bays, estuaries and deep water and may either localize in certain areas or they move about. Crab and shrimp live on the bottom and for the most part are localized in specific portions of Puget Sound and the Straits. Pacific oysters are presently grown in every major bay and Olympia oysters are now grown only in bays of southern Puget Sound. Clams occur naturally in every part of Puget Sound and the Straits. Even though crabs, shrimp, clams and oysters are localized in adult life, they produce pelagic larvae which become widely distributed by water circulation, and thus they extend the geographic distribution of each species.

The first white settlers in Puget Sound primarily utilized salmon, crabs, clams and oysters. As the population increased, fishing intensity increased. The use of nets and power boats and more efficient methods of harvesting and processing created an increased demand on the Puget Sound fisheries. Since the late 19th and early 20th centuries, fishery resources from Puget Sound have reached markets over the entire North American continent and throughout the world. In addition, these resources have been exploited by sport fishermen, especially since the 1930's. On the basis of a national survey of sport fishing made in 1960 by the U. S. Fish and Wildlife Service, it is calculated that about thirteen million dollars was expended by salt-water anglers in Puget Sound for food, lodging, transportation and purchase and rental of equipment and services. In 1960, the commercial production of fish and shellfish from Puget Sound was valued at eleven point six million dollars at the fisherman level. The value of this commercial production is increased still further at the wholesale and retail levels and does not include capital investment, capitalized value, or contribution to the state's payroll. In 1960, Washington ranked fourteenth nationally in total poundage and ninth in total value of commercial production of fish and shellfish.

Except for some of the bottom fish and rockfish, most commercially valuable species have undergone the classic pattern of high catches in early years, often resulting in declines in production, and followed by regulation to achieve sustained yield. At present, many of the species less easily affected by man, are relatively stable in abundance, while those most easily affected, either through environmental changes or harvesting methods, are declining. In the latter category are salmon and intertidal species, such as clams. In the case of salmon, complex hatchery systems, controlled natural rearing areas, stream clearance, and stringent regulations of the commercial fishery are being used by the Department to bolster this declining resource. In the future, more extensive use of the marine waters is envisioned through development of floating oyster culture, improvement of beaches for clam production, utilization of deep water clam resources, and expansion of the salt-water controlled natural rearing program.

In spite of these efforts to halt this decline and to increase production, alteration or removal of water environments by construction of dams, water diversion, filling of intertidal areas for industrial development, and pollution of the water, have a serious effect on the future of our fishery resources.

EFFECTS OF POLLUTION -- Pollution may affect fishery resources in several ways, not all of which are immediately obvious to the casual observer. Polluted water may have the following effects: (1) Kills fish or shellfish directly. (2) Destroys the water's productivity of natural food organisms for commercially important species or otherwise interrupts the food chain. (3) Covers the bottom with sludge beds. (4) Creates oxygen depletion which suffocates or places under stress, fish, shellfish or the organisms upon which they feed. (5) Has a debilitating effect, such as causing shellfish to be poor and unmarketable and fish to be more susceptible to predators, disease and impairment of physiological functions. (6) Through bacterial contamination of off-flavor, makes fish and shellfish unsatisfactory for human consumption.

These effects may operate on all or part of the organism's life cycle. A few of the pollutants present in Puget Sound which may have these or other unknown adverse effects on fisheries are discharged from oil refineries, chemical industries, domestic sewers, metal manufacturing industries, food processing plants, and wood products industries. In general, waste from all sources except domestic sewers and pulp and paper mills is comparatively low in quantity, localized and fairly well regulated.

The two principal problems are those created by pulp mills and domestic waste from municipalities. Domestic wastes in general affect the marketability of shellfish only and present fairly well defined local conditions. The pulp mills on the other hand affect wide areas with large volumes of waste, which have toxicities and oxygen demands far in excess of any sewage discharged by municipalities. Domestic waste problems are dealt with by state, county and city Public Health agencies and have direct attention because they present a potential hazard to human health.

Extensive research conducted over the past twenty-five years by the Washington Department of Fisheries and other research organizations has established tolerances of many marine organisms to some of the components of pulp mill wastes. These wastes have three particularly undesirable characteristics, namely oxygen demand, suspended solids, and toxicity.

In general, at any given time, the dissolved oxygen should not be more than two parts per million below solubility of oxygen at the existing temperature, provided that a minimum of five parts per million should be maintained at all times. Suspended solids should be impounded and settled to prevent sludge bed formation in bays or rivers. Specific levels of sulphite waste liquor have been found unsafe to various fish and shellfish.

The life cycle of clams and oysters can be broken by concentrations of less than nineteen parts per million of sulphite waste liquor. Research has indicated adverse effects on survival of adult Olympia oysters at thirteen parts per million. Young salmon may be killed in concentrations of less than five hundred parts per million. The response levels of many species of fish and shellfish lie between these two values. It must be noted that deleterious effects on the reproductive cycle of oysters have been demonstrated at sulphite waste liquor concentrations below thirteen parts per million. It should also be clearly pointed out that these are values to which no safety factor has yet been applied.

POLLUTION LEVELS -- In addition to specific surveys carried out by the Pollution Control Commission staff, considerable effort was expended by the Department of Fisheries between 1956 and 1960, to determine the levels and occurrence of sulphite waste liquor in several areas in Puget Sound and the Straits of Juan de Fuca. These investigations encompassed the various seasons of the year, differences between years, varying wind and tide conditions, as well as sampling from bottom to surface. In the Bellingham Bay area, the highest single value observed as eleven thousand parts per million. In inner Bellingham Bay, monthly averages ranged from fifteen parts per million to sixteen hundred parts per million. In outer Bellingham Harbor, the monthly averages ranged from zero to four hundred and eight parts per million. In Samish Bay, about ten miles from the mill outfall, monthly averages ranged from zero to twenty-two parts per million, sulphite waste liquor. In Guemes Channel, near Anacortes, the highest single value found was forty-six hundred parts per million. Monthly averages in this channel ranged from zero to twenty-three hundred parts per million. In Fidalgo and Padilla Bays, monthly averages ranged from zero to eleven parts per million. No oxygen problem was observed in the northern Puget Sound area except in the vicinity of the mills.

In the Straits of Juan de Fuca at Port Angeles, observations indicated relatively high sulphite waste liquor levels. The highest single value observed was seventeen thousand two hundred parts per million. A short distance from a mill outfall near the mouth of the harbor, sulphite waste liquor concentrations averaged three thousand parts per million. The inner harbor averaged three hundred and fifty-seven parts per million. Extremely low oxygen values accompanied the high sulphite waste liquor levels.

Several series of measurements have been made in Everett Harbor by both Washington Department of Fisheries and Pollution Control Commission. These demonstrated that high sulphite waste liquor and low dissolved oxygen existed prior to 1950. Since 1950, surface sulphite waste liquor levels have declined and now generally average less than five hundred parts per million in the area, but conditions in the inner harbor are considered to be a serious problem. A break in the deep water diffuser line, such as happened in 1954, can cause large increases in sulphite waste liquor concentrations and additional lowering of oxygen levels in the surface water.

Based on our experiences with pollution, the Department of Fisheries feels that the most desirable situation is to retain water in an unpolluted condition. The fact that a fishery or a fish population in an area does not exist or has already been destroyed by pollution does not justify pollution of the area or failure to correct the pollution problem.

Recent reports on estimated world population increases and food requirements clearly point out that we must not only maintain but increase harvest from the sea. When dealing with a self-renewing resource, such as fisheries, the future is in our hands here and now, and this is where and when the action to abate pollution is necessary.

Thank you.

CHAIRMAN STEIN: Do you have any questions?

MR. DWORSKY: No, I have no questions.

CHAIRMAN STEIN: All right. Thank you very much.

MR. BERGERSON: The next presentation will be by the State Game Department and will be presented by Mr. Cliff Millenbach.

STATEMENT ON BEHALF OF WASHINGTON STATE DEPARTMENT OF GAME

(By Mr. Cliff Millenbach)

MR. MILLENBACH: Mr. Chairman, I present this statement on behalf of the Director of the Department of Game, Mr. John Biggs.

Thanks to a wealth of lakes and streams of high quality, in the State of Washington, it ranks first in the catch of trout by sports fishermen. During the year of 1961, three hundred and seventy thousand people were licensed to fish for game fish. Non-licensed fishermen, composed of juveniles, aged and certain veterans are estimated to number another two hundred thousand. Together, these fishermen caught eighteen million trout. Using the annual expenditure figure of a hundred and six dollars as reported in the 1960 Survey of Fishing and Hunting, licensed fishermen alone spent thirty-five million dollars in the State last year. The importance of the resource is obvious.

Multiple water uses, however, have in some areas altered or destroyed critical and important fish habitat. Dams for hydropower have completely destroyed runs of anadromous fish. Unrestricted use of water for irrigation has changed year around streams into intermittent flows incapable of good fish production. Water pollution, though local at point of discharge, has affected entire watersheds and vast marine areas. Slow, long term deteriorations of environment are particularly difficult to ascertain and to guard against. The correction of a single source of pollution can have a beneficial effect over a large area.

In Washington, game fish include three anadromous species -- cutthroat, steelhead and dolly varden. These trout are found in Puget Sound and nearly all of streams tributary to it. Generally, these species spend two years of their life as juveniles in fresh water and a year or more in salt water before they return to rivers and streams to spawn. River estuaries where these species make the transition from fresh to salt water are considered to be a most important environment relating to their survival. Adverse physical or chemical conditions exert a more pronounced effect on the young fish during this period of transition from fresh to salt water. Fish culturists have frequently observed a nervousness and a weakness among young steelhead which have been held beyond the point of normal downstream migration. After reaching salt water, these trout are found most abundantly in the estuaries, bays and tidal zones. Cutthroat roam the shore areas around Puget Sound while steelhead move out to the Pacific Ocean, where their travel pattern is little known.

Four major river systems tributary to Puget Sound, the Green River, the Skagit River, Puyallup and the Snohomish, are top producers of steelhead. These four rivers and their tributaries provide thirty to fifty percent of the total annual catch of winter steelhead, which last year amounted to a hundred and thirty-seven thousand fish. Three of these rivers, however, are subject to industrial pollution, particularly pulp mill effluent, and seasonal catches have varied more than the total catch. Pollution caused mortalities of both juvenile and adult fish have been observed in all three. The death of steelhead migrants and other fishes as they passed over sludge beds formed by pulp mill operations have been recorded and documented. Undoubtedly, many fish kills have gone undetected because dead fish sink or are rapidly picked up by birds and animals.

An intensive and successful hatchery program for steelhead has been developed by the Department of Game. In many rivers, catches of winter steelhead now contain as many hatchery fish as wild fish. The successful application of the Department's steelhead program, however, is critically subjective to water use by industry. In addition to problems relating to the release of toxic materials, large volume discharges of waste water can and do alter the environment to the extent that young steelhead and cutthroat are unable to make the transition from fresh to salt water.

The Director of the Department of Game is a member of the Pollution Control Commission. In this capacity, he participates in the formulation of policies and actions of the Commission. The correction of pollution and the prevention of pollution are two of the most important responsibilities and activities of this Commission. Studies of the environmental effect of low level pollutants is recognized as an essential facet of a sound pollution control program. Likewise, the ecology of areas subjected to long term pollution loads needs careful study.

Operating primarily as a management agency, the Department of Game does not have a staff available for specific or long-term research. Many of the problems relating to pollution and environment cannot be understood except through long-range study. Monitoring programs to record environmental changes certainly are needed.

The Department relies on the limited staff of the Pollution Control Commission for assistance and action on the day to day problems of pollution. Neither agency, however, has the resources or staff to handle the broad, long-range problems of pollution. Problems more difficult of solution need the best technical knowledge available. Assistance from other agencies more specifically organized for research and special studies is urgently needed. Contractual arrangements to support existing research studies of the Pollution Control Commission could provide a quick answer in a very efficient manner.

The preservation of the quality of the vast water resources of the State of Washington is certainly one of the great challenges for all agencies responsible for, or associated with this resource.

CHAIRMAN STEIN: Thank you, sir. Are there any questions? (No response) The Chair has been persuaded to call a ten-minute recess. I think we can all get up and stretch. We will reconvene promptly in ten minutes because we want to try to get through.

(Short recess)

CHAIRMAN STEIN: May we reconvene? Mr. Bergerson?

MR. BERGERSON: Proceeding with the regular program, the next Department we'll call on for a presentation will be the State Department of Health; and Mr. Jensen will make that presentation.

STATEMENT ON BEHALF OF
WASHINGTON STATE DEPARTMENT OF HEALTH

(By Mr. Emil Jensen)

MR. JENSEN: Mr. Chairman, conferees, ladies and gentlemen, I believe that you will find through the remarks that I would make that I am not going to include any extensive or specific comment with respect to public health effects of pollution conditions in the Puget Sound Basin. I feel the record is fairly complete on this. I will mention a few cases. Also, I would hope -- I think you would find that in what I do say and what I do intend to comment on, it's probably just a little bit different direction than the pattern of comments so far today; and as it may be, I would be hopeful that it will be helpful here to you folks in connection with the determination that you must make following this conference.

I believe the most important thing that I might contribute to this conference is to underline the full depth and breadth of the meaning of clean waters in this area. I will do this because in a conference such as this, it seems that there may be more than the normal tendency to judge our conditions based on what may be acceptable elsewhere. Also, I believe it is appropriate to include these comments with health considerations as they involve a direct relationship to the maintenance and enhancement of human resources.

When compared to many other parts of the country, there is a distinct added dimension to water quality objectives in this area. There is not only the usual high priority for a safe and adequate supply of water for domestic use and safety with respect to the recreational use of our waterways: there is another significant factor which we have to identify as the aesthetic or psychological considerations.

In general, the water courses in this area are relatively clean and there may be in some cases, a theoretical assimilative capacity to take on more waste burden without creating conditions which may be proven scientifically to be detrimental. However, these conditions, as they exist, are the starting point with our people. As the National spotlight has been turned on the evils of pollution over the past few years, our people have come to regard whatever they see, or believe, to be in our water course is pollution.

I can't believe it is our place to tell the people, in effect, that we can stand a little more deterioration of our water resources and still maintain a technically safe and productive environment. Rather, I believe it is our responsibility to accept their will and desires as our objectives.

Evidence of this prevailing attitude was presented by the overwhelming support of the immense sewerage project for the Seattle Metropolitan Area. Therein, the voters accepted what is believed to be a record high cost of more than one hundred dollars per capita for interception and treatment alone to attain their objectives. Also, a recent article in a Seattle paper conveyed the view that the people would not accept the discharge of digested sludge to Puget Sound -- that to them, this would mean sweeping our wastes under the rug.

And it should be noted that this demand for clean water extends to nearly every mile of the twenty-two hundred miles of shoreline in Puget Sound. Every use, whether it be swimming, boating, fishing, clam digging, water skiing, skin diving or simply as waterfront for residential property occurs generally throughout the area, and will be found immediately adjacent to the front door of the major urban centers.

I note that the Pollution Control Commission has in a general way included discussion of the water uses in the area, and of the sources and effects of pollution which are of concern to our Department. And the State Department of Fisheries has presented information on the occurrence of shellfish in Puget Sound, which is also related to our interests. In view of this, I am going to confine my remarks to some specific details of the situation with respect to sources and treatment for community water supplies and a few comments on the existing and potential threats of pollution as related to public health.

COMMUNITY WATER SUPPLY -- About eighty communities having a population of just over a million people are served by surface sources; and in addition, a hundred and sixty systems having a population of about four hundred and ten thousand depend upon ground water. I think it is important to note that of the eighty surface supplies, only five relatively small systems are required to provide more than simple chlorination as treatment in order to meet the drinking water standards of the State and the U. S. Public Health Service. This is one element of the situation I pointed to earlier when I claimed that the people in the area were conditioned to living with clean water.

For the most part, the surface supplies are from mountainous and sparsely inhabited watersheds; and it appears that they will be able to meet the demands for at least the next half century. For instance, with the City of Seattle, the planned developments of the Cedar and Tolt Rivers -- Tolt River watersheds, will produce five hundred and eighty million gallons daily and are expected to serve an estimated population of more than two million. Similar expansion projects for other large communities are in various stages of planning and development.

Somewhat unique in this area, I believe, is the fact that the bulk of the industrial supply is furnished through municipal systems. This was referred to earlier this afternoon, in the case of Bellingham and so on. In some cases, the industrial use far exceeds the domestic demand in these municipal systems. In Bellingham, the City brings in about sixty million gallons daily and delivers about fifty of this to a pulp mill. Similarly in Everett, about eighty of the ninety, and in Tacoma, maybe about twenty-five of the fifty-five million gallons daily total daily supply is delivered to pulp mills. In the Seattle area, there are very few separate industrial sources, and it is estimated that about fifty percent of the daily supply is delivered to commercial and industrial accounts.

In general, in the future, it seems that there need not be any significant involvement of domestic and industrial waste disposal practice in the community water supply picture. The extent of this will be dependent upon the success in devel pment of more supply from the upland sources. It is there to be had and is just a matter of planning and promotion. This does not mean that we do not expect quality control problems. We are concerned over the effects of recreational activities; logging operations; road, powerline and dam construction; use of toxic chemicals on lands and forests in the upland watersheds and so on.

SHELLFISH AND FISHERIES PRODUCTS -- As indicated in the Department of Fisheries' statement, shellfish, including oysters and clams, are widely distributed throughout the Basin. Our concern in connection with shellfish and other fisheries products extends beyond the usually associated effect of bacterial pollution, to include the recently demonstrated hazards of viral and chemical contaminants.

Pollution conditions have caused discontinuance of commercial operations in a few areas and have required prohibition of private clam digging for instance in areas adjacent to population centers. Some areas have been restored to an approved status by the installation of community sewage treatment and improvement in individual sewage disposal facilities for adjacent residential properties.

With respect to recreation -- it is difficult to choose something meaningful to say about the interrelationship of pollution and recreation in a summary statement because recreational pursuits are so varied and there are a multiplicity of potential effects of pollution.

Obviously, from what has been presented in connection with the status of domestic sewage treatment, there are areas which are not safe for swimming or the pursuit of other water contact sports. And in some cases, there is evidence of impairment of pleasure boating. However, rather than adding to this list, it seems more important for this conference to consider the potential bearing of recreational use on water quality objectives and pollution control measures for this area.

As pointed out earlier, practically all of the tidal waters, lakes, rivers and streams are adaptable and put to some form of recreational use; and it is the expectation and desire of the people to maintain this favorable situation. I am referring to the salmon fishermen on the bays immediately in front of the large cities, the forty thousand pleasure boats plying every cove and inlet of Puget Sound, the fifty thousand dollar beach homes right in the heart of the cities, and the bathers, skin divers and water skiers.

In addition, it is important to recognize that the maintenance and enhancement of the desired recreational benefits requires attention to the fullest dimension of the aesthetic considerations; and that as this is done, practically every source of waste pollution becomes involved.

A couple of final observations. I would term them as what we see as the major public health problem and an item of major public health concern in this whole matter of sewage disposal as we'd look down on it in the Puget Sound Basin.

Moving over from viewing the public health effects of pollution and speaking directly to waste disposal practices, there are a couple of things which are of great concern to our Department, and which too often are regarded as being something we will more or less have to tolerate and learn to live with.

I am referring to storm water overflows from combined sewers and drainage through natural water courses from populated areas, and the matter of sewage collection and disposal in rapidly expanding urban areas. I believe the elements of these problems are known and do not have to be mentioned here. It is contended that they must be tolerated to some extent because experience has shown that solutions are not as tangible and are seemingly beyond reach in certain cases. In looking upon all the problems associated with sewage disposal in this area, it is believed these two matters are of greatest concern to public health.

I appreciate the chance to appear before your group.

CHAIRMAN STEIN: Thank you, Mr. Jensen. Are there any questions? Any questions?

MR. DWORSKY: Emil, you have mentioned in your statement something to the effect of problems associated with -- I was trying to recall exactly what you said there -- bathing areas that either you were aware that had been closed or might be closed -- I wasn't quite sure how you stated that. You made also some reference to clam or shellfish area closures. Is there any specific information available on that type of thing in the files of the State?

MR. JENSEN: Yes, with respect to commercial areas, of course, that's all very definitely a matter of record. I mean that goes into interstate commerce and participating in the voluntary program and all of the -- the record of the closed areas and so on, we can certainly furnish that, if that's what you're after. With respect to sport fishery, private clam take, say -- we regard the -- as I indicated in the statement, there are several areas adjacent to the populated -- yes, the population centers, that are closed. It's a matter of posting and informing the public as to the hazard associated with private clam takes.

MR. DWORSKY: If this material is convenient and available, we'd like to see it entered into the record.

CHAIRMAN STEIN: For the purposes here though, there are some areas which don't meet the standards of this voluntary interstate shellfish program. Some of the areas are closed?

MR. JENSEN: Oh, yes; but what happens, in some of those cases, the industry just adjusts itself and it doesn't come down to -- I mean, they will move out of an area, let's say, and then the record wouldn't indicate that it'd be an imposed enclosure, because we didn't go in and survey the condition. The industry just voluntarily, let's say in the last thirty years, might have moved out. Right here in our front door, there is an area that was used for commercial clamming and oysters many many years ago, but it's closed. It wouldn't appear on the record as the closed area.

CHAIRMAN STEIN: I think we have many instances of that kind. It's the old story of the pollution situation on the Potomac. During the '20's, when the people used to swim in the Potomac, they used to say it was polluted and a hazard; but after a while, in the '50's, no one in their right mind would swim in the Potomac and you couldn't say -- some people would say there wasn't an interference with swimming because no one would go near it, but the fact that something is so polluted that no reasonable man would use it for that purpose doesn't make it any less polluted. Do you have any more questions?

MR. DWORSKY: No, I don't.

CHAIRMAN STEIN: Mr. Bergerson?

MR. BERGERSON: I have no questions.

CHAIRMAN STEIN: Thank you, Mr. Jensen.

MR. BERGERSON: The next presentation will be by the State Department of Commerce and Economic Development. It gives me real pleasure to -- is your name Mr. Rose?

MR. BEEBE: No, Mr. Rose isn't here this afternoon.

MR. BERGERSON: I was just about to introduce Mr. Rose, our new Director and I find that I am not able to do so.

MR. BEEBE: Mr. Rose was here this morning, but he had commitments this afternoon that prevented his making this statement in person. I am reading this for Mr. Rose.

CHAIRMAN STEIN: Would you identify yourself for the record, sir?

MR. BEEBE: Yes, I am Richard M. Beebe, with the Department of Commerce.

STATEMENT ON BEHALF OF WASHINGTON STATE DEPARTMENT OF COMMERCE & ECONOMIC DEVELOPMENT

(By Mr. Richard M. Beebe)

MR. BEEBE: The Department of Commerce and Economic Development has an interest in recreational and industrial uses of water. We are visited by approximately six million out-of-state tourists a year and most Washingtonians at some time during the year, avail themselves of our beaches, swimming and boating areas or other recreational waters. As would be expected, industries requiring large quantities of clean, process water, have tended to locate in the State of Washington also. We hope in the future to attract more industries of this type.

It is extremely important however, that no one, be it individual, firm or governmental entity, be permitted to destroy the usefulness of these waters for others. In maintaining proper levels of purity, extreme care should be exercised that the standards set are not beyond the economic capacity of the users, particularly the industrial users, for without the jobs these firms provide, our State would not be able to grow and develop in the manner it should.

Thank you.

CHAIRMAN STEIN: Thank you. Are there any questions? Thank you for your statement.

(Applause)

MR. BERGERSON: I think we must have a new record there. It took us all somewhat by surprise. (Laughter) The next presentation will be by the State Parks and Recreation Commission, Mr. Rollefson.

STATEMENT ON BEHALF OF WASHINGTON STATE PARKS AND RECREATION COMMISSION

(By Mr. Rollefson)

MR. ROLLEFSON: Mr. Chairman, ladies and gentlemen, my statement is a little longer than Mr. Beebe's and we do not have a Director as yet.

The Washington State Parks system comprises of one hundred and twenty-one areas, varying in size up to twenty-four thousand acres for a total of approximately seventy-seven thousand acres. There are some fifteen or more additional major areas being acquired or under study for acquisition in the near future. The parks, according to their individual significance, physical characteristics and use, are classified under various categories.

Of these hundred and twenty-one areas, the great majority depend upon the presence of water or snow usable for recreation as their most important asset providing those recreation activities so essential to our physical and spiritual well being.

Thirty-six of these areas are on salt water; twenty-one have fresh-water lakes; twenty-four are on fresh-water streams; four are ski areas; thirty-two of the areas, being for the most part, either small in size, of poor significance as parks or historical sites, do not border on or enclose recreation water. Even so, many of these are so located that a view is presented with water as the setting, thus supplementing the value of the site.

Thirty-one of the more heavily used parks are in the Puget Sound area or vicinity, and in 1961, received sixty percent of the use of all State Parks. Being in the heavily populated area of the State, they are critcally needed, with little hope of replacement should one become undesirable.

All of the potential parks which are under study are being considered because they have recreation water of a desirable quality as an important asset.

The attendance in Washington State Parks has greatly increased in the past few years. In 1956, attendance figures showed a total visitor count for day and overnight use of five million seven hundred and seventy-one thousand persons.

In 1961, the count was eight million ninety-one thousand persons, for an increase of forty percent in five years. The increase over the 1960 figure of seven million fifty-eight thousand persons being thirteen point eight percent. Because some of the areas are undeveloped or relatively undeveloped, records are not kept. As a result, these figures are conservative, and the increase, in all probability is even greater.

The importance of water to boat recreation is indicated by the figures available on State Park areas for boat launching and moorages. Boats moored in 1961 were in excess of thirty thousand and boats launched, in excess of seventy thousand. Involving at the average rate of three point five persons per boat, there was a total count of three hundred and fifty thousand person-occurrences. There is of course a much greater boat recreation use, since many areas, including State Park areas, serve boats for which records are not available.

In the State of Washington and in addition to the State Park system, other Governmental agencies and private industries have developed many areas because of the booming need for recreation. Following is a list for the year 1958, as published in the Recreation Survey of the Pacific Northwest Region, by the Columbia Basin Inter-Agency Committee:

Nine National Forests have developed a total of four hundred and forty-six areas involving four thousand five hundred and seventy-two acres. In addition, there are nearly a million three hundred and eighty-five thousand acres designated as primitive, wild or winderness areas.

The National Parks System have two National Parks, two National Monuments and one National recreation area for a total of one point two million acres.

The Bureau of Sport Fisheries and Wildlife of the U. S. Fish and Wildlife Service, have five migratory water fowl reserves, six colonial bird reserves, one big game refuge, for a total of ninety-nine thousand acres; and in addition, they maintain nine National fish hatcheries.

The Bureau of Reclamation has impounded twenty-two reservoirs with a total water surface of seventy thousand one hundred and fifty-five acres. Many areas are under permits for recreation by other agencies, including State Parks.

The U. S. Corps of Engineers provide fifty-six thousand six hundred and fifty-nine acres of water and eighteen thousand two miles of shore lands for a total of seventy-four thousand six hundred and sixty-one acres behind five projects.

The Corps is currently developing other projects along the Columbia River and the lower Snake,which will greatly increase the available water and land for recreation, which is participated in by the State and other agencies.

The State Department of Game administers nineteen game refuges and a hundred and nineteen public fishing areas have been developed. In Eastern Washington, are located sixty-three.

The Department of Natural Resources administers several small roadside recreation areas.

The Department of Highways has a hundred and eight roadside rest stops.

In 1958, the counties operated thirty-seven non-urban recreation areas containing one thousand nine hundred and fifty-eight acres.

Even timber companies are operating twenty-two recreation sites and two power companies maintain six public recreation sites.

Mining interests operate two public recreation sites.

Municipalities have developed recreation facilities on two municipal power reservoirs and several port districts provide and maintain boat-launching ramps and swimming beaches.

A non-resident recreation survey, conducted by the State Department of Commerce and Economic Development in 1960 shows recreation and the tourist business are fourth in importance to the State's economy. Because of the high recreation potential which the State has, it may very well, in a few years, increase up the ladder in importance. The survey further showed that out-of-state recreation alone brought into the State directly, two hundred and fourteen million four hundred thousand dollars for that year.

I might state that it has also been estimated that within-State recreation would contribute a like amount, and if this figure was included, would put recreation as number three in the State's economic importance.

The literal meaning of the word "recreation" is the act of reviving or refreshing after toil or exercise; reanimation as to languid spirits or exhausted strength; to gratify. Could we be refreshed while viewing unclean water? Could we be gratified to find our ducks have a tainted flavor, or to camp beside waters which have an undesirable odor? We cannot, as the most beautiful state in the Union, afford to lose many of the valuable recreational assets we all enjoy in one form or another. Nothing must be neglected to enable us to perpetuate this beauty and to increase its value economically to the State.

Many hundreds of years ago, even Mohammed recognized this need and declared that free access to water was the right of every Moslem community. All persons who shared rights to a water course were held responsible for its maintenance and cleaning. The whole community was responsible for the care of large water courses and all users shared the cost according to their degree of use. Can we do less and still retain this heritage, which is ours?

Thank you.

CHAIRMAN STEIN: Thank you, sir. Are there any questions? (No response)

MR. BERGERSON: Thank you, Mr. Rollefson. The next presentation will be by the U. S. Fish and Wildlife Service, Mr. Dick Pressey.

STATEMENT ON BEHALF OF UNITED STATES FISH AND WILDLIFE SERVICE

(By Mr. Dick Pressey)

MR. PRESSEY: My statement will be quite short also.

Careless exploitation of natural resources often results in the depletion of these resources before the need of management is realized. Such is the situation existing in the Pacific Northwest where rapid industrial expansion accompanied by an increased human population has led to a reckless use of the formerly abundant clean waters of this area.

History of water pollution is one that man cannot point to with pride. Too often we have rationalized the problem by seeking a dictionary definition of pollution. Too often we have been asked to prove that waste discharges were unreasonable and adverse, even though the facts were apparent -- except to those who were utilizing the area for disposal.

Too often we have compromised in seeking a solution by designating disposal zones in which no protection is given to fish and wildlife and recreation. Such areas are fondly called "dilution zones" by those who defend them. If we continue to struggle along at the present level of work on pollution control, suffering the frustration and abuse of inadequate action, the fish and wildlife resources will continue to be damaged, possibly beyond the prospect of full recovery.

Recognition of polluted waters in Puget Sound is not of recent origin. The controversy over all waste disposal has been a public issue for many years, but little progress has been made toward adopting proper abatement measures. Polluted waters have resulted in no less than sixty-three recorded fish kills in Puget Sound in the last ten years. On four separate occasions in the same area on the Duwamish River, thousands of salmon, steelhead and other game fish perished from pollutants. Each incidence resulted in an unproductive investigation to determine the offending substance and the origin of its introduction.

I might digress for a moment -- from the statement made by Mr. Riley this morning, damage action has been taken against one of these kills. So this statement is not entirely correct. To my knowledge, this is the first time legal action has been taken in this area, in spite of the number of fish kills that have occurred.

Fish kills have consistently occurred in the Hylebos waterway at Tacoma and in the estuarial zone of the Snohomish River. Hydrographic studies in northern Puget Sound have revealed that restricted mixing with outside water prevents dilution of pollution in Bellingham and Samish Bays.

Investigations have uncovered these and other critical areas that now jeopardize the fisheries resources of Puget Sound. The study of a clear definition of the pollution problem should be continued. Basic pollution research should be accelerated, but it is paramount that abatement measures should be taken immediately in known danger zones. Discharge of pollutants into Puget Sound substantially negate operations of fish hatcheries and research laboratories attempting to preserve and enhance the fisheries resources.

The U. S. Fish and Wildlife Service spends annually in Puget Sound, three hundred thousand dollars for research, hatchery operations, technological developments and the collection of fishery statistics. Federal fisheries facilities in this region are valued at approximately two and a half million dollars. This investment of Federal funds is by no means a full measure of the importance of the multimillion dollar fisheries resource or the relative value of this resource in terms of recreation. The importance of maintaining the Fish and Wildlife Service resources in the

Puget Sound area to meet present and future recreational needs cannot be adequately measured in the terms of dollars.

The U. S. Fish and Wildlife Service endorses the early adoption of an adequate pollution abatement program. We recommend a balanced program that would take immediate abatement measures in known critical areas and then accelerate research studies to clearly define the total problem to facilitate its eventual resolution.

Thank you.

CHAIRMAN STEIN: Thank you, sir. Are there any questions? Any questions? (No response) If not, would you call the next speaker, Mr. Bergerson?

MR. BERGERSON: Thank you, Mr. Pressey. The next presentation will be by the U. S. Corps of Engineers, Mr. Ray Holmes, representing the Seattle District Engineeer, who will make the presentation.

STATEMENT ON BEHALF OF
U. S. CORPS OF ENGINEERS

(By Mr. Ray E. Holmes)

MR. HOLMES: Mr. Chairman, ladies and gentlemen, I am Ray Holmes, Engineer, representing the Seattle District Corps of Engineers.

I would first like to give you a brief introduction to the Corps and its relation to the subject. We were the first agency of the U. S. Government to be assigned the responsibility of water resource development; initially for the development of our waterways for navigation, and twenty-five years ago, the responsibility was assigned for flood control on a national basis. In connection with these dual purposes, the Corps has also been charged with complete water resource planning and development. The purposes to which special attention is given, in addition to navigation and flood control are: Hydroelectric power, water supply, irrigation, pollution abatement, flow regulation, recreation, and fish and wildlife conservation and improvement. Corps of Engineers reservoirs are now providing three and a half million acre-feet of storage for municipalities and industries and four million acre-feet of irrigation storage along with pollution abatement benefits.

To implement these responsibilities, the Corps has prepared basic plans on the major rivers in each Corps of Engineer District. These plans vary in their degree of coverage, depending upon the current and predicted needs for water resource development, to keep pace with the economic progress.

In the Puget Sound area, Mud Mountain Dam on the White River and the nearly completed Howard A. Hanson Dam on the Green River were constructed principally for flood control. Howard A. Hanson Dam has an additional purpose of providing storage for pollution abatement, fish and wildlife enhancement and can be developed for future water supply storage. These two projects represent a Federal investment of nearly eighty million dollars.

All other projects constructed by the Corps in the Puget Sound area are principally single purpose projects, either for flood control or navigation. We have two active projects under way: (1) The improvement of the Sammamish River for drainage and flood control, which will amount to about two million dollars and the Snohomish River navigation, improvement of the channel, about a million and a half.

Although not in the Puget Sound area directly, we have recently recommended for construction, a multi-purpose project on the Wynoochee River, a dam and reservoir, near Aberdeen. This project will, in addition to power, flood control, fish and wildlife, irrigation, recreation and water supply, have benefits in mitigation of pollution in the Chehalis River by augmenting the present critical low flows. This project, if approved by Congress for construction, will represent a Federal investment of about forty million.

Of importance, we are making comprehensive studies of the four major river basins in the Puget Sound area; namely, the Nooksack, Skagit, Stillaguamish and Snohomish. These studies will include provision for pollution abatement whenever it is possible or can be included as a compatible project purpose. To determine the time schedule for these resource developments, we are taking initial steps toward a base economic study of the Puget Sound area. This study would be made in cooperation with, and take advantage of, the numerous studies which are now underway in this region.

The Seattle District is also studying numerous navigation projects and has recommended several for construction; extension of the waterways at Tacoma, a boat basin at Kingston, and the removal of an obstruction in the Swinomish channel. The Federal Government has an investment of over twenty million dollars in existing navigation projects in the Puget Sound area.

It is the policy of the Corps of Engineers to stipulate in its planning for projects that sanitary facilities and water supply are to be constructed in accordance with the applicable state laws and regulations that pertain thereto.

Specifications for construction of Corps projects always contain provisions for prevention of pollution from contractor operations and the contractor is held liable for any damage of this nature.

We have a few other responsibilities regarding navigable waters. The Secretary of the Army has also been designated by Congress as responsible for protection of our navigable waterways from unlawful deposition of materials.

In the interest of brevity and the fact that everybody would like to get this part over, I am going to simply quote these acts. There is the River and Harbor Act of 1899, Solid Refuse, making it unlawful for persons to deposit this material in navigable waterways. And in this connection, the Seattle District has recently completed a program with the City of Seattle on a cooperative basis for the removal of floatable debris in the Seattle Harbor and in Lake Washington. We also are about to approach a study of the same nature with the City of Tacoma.

We have also responsibilities in regard to the oil pollution on navigable waterways. In enforcing the Oil Pollution Act of 1961, the employees of the Corps of Engineers, employed on river and harbor works, employees of the Corps of Engineers Harbor Supervisor, and officers and employees of the Bureau of Customs and the Coast Guard, shall have power and authority to go on board and inspect any foreign or United States ship while the ship is within the territorial jurisdiction of the United States; and it shall be their duty to arrest and take into custody, any person who may violate any of the provisions.

As the demand for water grows and more widespread reuse of water becomes necessary, it will be essential for a great deal more progress to be made in elimination of pollution at the source. Regulation of the flow of rivers so that adequate quantities of dilution water will be available during periods of low flow, for pollution abatement, will become increasingly more difficult to achieve. Similar to the water resource development, alleviation of pollution must also be a basin-wide approach.

In summary, the Federal Government has a substantial investment in the Puget Sound area. In multi-purpose projects, we have about eighty million dollars; in navigation projects, over twenty million; in flood control projects, two million; and in the maintenance of channels, navigation projects and flood control projects, nearly six million annually. For projects to be constructed in '62 and '63, four million; and for recommended projects, forty-three million.

Local agencies have a large and difficult problem and I wish to assure you that the Corps will cooperate in every way possible in your efforts to solve these.

Thank you.

CHAIRMAN STEIN: Thank you, Mr. Holmes. Are there any questions? I wonder if we could have your statement inserted as a whole in the record, because I know you summarized it. I don't think there will be substantive changes. There were certain acts you cited which can just as well appear in the record, if you don't mind.

MR. HOLMES: I would like the opportunity of making a little more presentable presentation and furnish this to you by mail?

CHAIRMAN STEIN: That would be entirely agreeable. I would like to call attention to one thing. You know, the Corps of Engineers, as is the Department of the Interior, very closely related to us as sister agencies in water resource work; and you did mention, Mr. Holmes, the low flow augmentation. There is a new amendment to our Act. I would just like to call your attention to that amendment. That's Section 2(b)(1) of the Federal Water Pollution Control Act as amended. It says, "In the survey or planning of any reservoir by the Corps of Engineers, Bureau of Reclamation or other Federal agency, consideration shall be given to the inclusion of storage for regulations of stream flow for the purposes of water quality control, except that any such storage and water releases shall not be provided as a substitute for adequate treatment or other methods of controlling wastes at the source."

Thank you, Mr. Holmes.

(Written statement of Mr. Ray E. Holmes received by Public Health Service, Water Supply and Water Pollution Control, PNW, on 19 January 1962, herewith entered into the record as follows:)

CORPS OF ENGINEERS STATEMENT ON POLLUTION

Given by Ray E. Holmes at Conference

in Olympia, Washington - 16 January 1962

I would first like to give a brief introduction to the Corps and its relation to the subject. We were the first agency of the U. S. Government to be assigned the responsibility of water resource development; initially for the development of our waterways for navigation, and 25 years ago responsibility was assigned for flood control on a national basis. In connection with these dual purposes the Corps has also been charged with complete water resource planning and development. The purposes to which special attention is given, in addition to navigation and flood control are: hydroelectric power, water supply, irrigation, pollution abatement, flow regulation, recreation, and fish and wildlife conservation and improvement. Corps of Engineers reservoirs now are providing 3½ million acre-feet of storage for municipalities and industries and 4 million acre-feet of irrigation storage along with benefits for pollution abatement.

To implement these responsibilities the Corps has prepared basic plans of the major rivers in each District. These plans vary in their degree of coverage, depending upon current and predicted needs for water resource development, to keep pace with economic progress.

In the Puget Sound area Mud Mountain Dam on the White River and the nearly completed Howard A. Hanson Dam on the

Green River were constructed principally for flood control. Howard A. Hanson Dam has an additional purpose of providing storage for pollution abatement, fish and wildlife enhancement and can be developed for future water supply storage. These two projects represent a Federal investment of nearly $80,000,000.

All other projects constructed by the Corps in the Puget Sound area are principally single purpose projects, either for flood control or navigation. We have two active projects: improvement of Sammamish River for drainage and flood control $2,000,000 and Snohomish River navigation, $1,500,000.

Although not in Puget Sound we have recently recommended for construction a multipurpose dam and reservoir project on the Wynoochee River near Aberdeen, Washington. This project will, in addition to power, flood control, fish and wildlife, irrigation, recreation and water supply, have benefits in mitigation of pollution in the Chehalis River by augmenting present critical low flows. This project, if approved by Congress for construction, will represent an investment of nearly $40,000,000.

We are making comprehensive studies of four major river basins in the Puget Sound area; namely, the Nooksack, Skagit, Stillaguamish and Snohomish. These studies will include provision for pollution abatement wherever it is possible or can be included as a compatible project purpose. To determine the time schedule for these resource developments we are taking initial steps toward a base economic study of the Puget Sound area. This study would be made in cooperation with, and take advantage of, the numerous economic studies that are now underway in this region.

The Seattle District is also studying numerous navigation projects and has recommended several for construction; extension of the waterways at Tacoma, a boat basin at Kingston, and removal of an obstruction in Swinomish channel. The Federal Government has an investment of over $20,000,000 in existing navigation projects in the Puget Sound area.

It is the policy of the Corps of Engineers to stipulate in its planning for projects that sanitary facilities and water supply are to be constructed in accordance with the applicable State's laws and regulations pertaining thereto.

Specifications for construction of Corps projects always contain provisions for prevention of pollution from contractor operations and the contractor is held liable for any damage of this nature. Concrete aggregate plants must have settling basins to prevent waste water from entering into the streams or bodies of water. Berms and levees are required where excavation materials may fall or slide into bodies of water.

The Secretary of the Army has also been designated by

Congress as responsible for protection of our navigable waterways from unlawful deposition of materials therein.

"From River and Harbor Act of 1899 - Sec. 13, Solid Refuse. - It is unlawful to throw, discharge or deposit from any flating craft or from the shore, wharf, manufacturing establishment, or mill of any kind, any refuse matter of any kind or description whatever, other than that flowing from streets and sewers, passing in a liquid state into any navigable water, or into any tributary of any navigable water, or on the banks of said waters where the same shall be liable to wash into said waters, either by tides, storms, or floods."

"From Oil Pollution Act of 1924 - Sec. 3. - It is unlawful to discharge oil by any method into the coastal navigable waters of the United States from any vessel carrying oil in excess of that necessary for its lubricating requirements, except in case of emergency imperiling life or property, or unavoidable accident, collision, or stranding.

The Secretary of the Army is authorized to prescribe regulations permitting the discharge of oil from vessels in such quantities, under such conditions, and at such times and places as in his opinion will not be harmful to health or sea food, or a menace to navigation, or dangerous to persons or property engaging in commerce, and for the loading, handling, and unloading of oil."

"From the Oil Pollution Act of 1961. - (International Convention for the Prevention of the Pollution of the Sea by Oil, 1954.) The discharge by any person from any ship of 500 tons or more within any of the *prohibited zones, of oil or any oily mixture which fouls the surface of the sea, shall be unlawful. The discharge of sediment which cannot be pumped from the cargo tanks of tankers by reason of its solidity or which is residue arising from the purification or clarification of oil fuel or lubricating oil may be discharged within the prohibited zones provided that such discharge is made as far from land as is practicable. The discharge, of any oily mixture other than lubricating oil, from the bilges of a ship within the prohibited zones shall be prohibited after August 30, 1962.

In enforcing the Oil Pollution Act, 1961, the employees of the Corps of Engineers employed on river and harbor works, employees of any Corps of Engineers Harbor Supervisor, and officers and employees of the Bureau of Customs and the Coast Guard shall have power and authority to go on board and inspect any foreign or United States ship while the ship is within the territorial jurisdiction of the United States,

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*The zone adjacent to the United States covers a band 50 miles wide adjacent to the coastline and will include the area now considered territorial waters of the United States.

and it shall be their duty to arrest and take into custody any person who may violate any of the provisions. The person so arrested shall be brought before a commissioner, judge, or court of the United States.

The Secretary of the Army, in administering this Act, may make use of the organization, equipment, and agencies, including engineering, clerical and other personnel, employed under his direction in the improvement of rivers and harbors and in the enforcement of laws for the preservation and protection of navigable waters.

Nothing in this Act shall modify or amend the provisions of the Oil Pollution Act, 1924."

As the demand for water grows and a more widespread reuse of water becomes necessary it will be essential for a great deal more progress to be made in elimination of pollution at the source. Regulation of the flow of rivers, so that adequate quantities of dilution water will be available during periods of low flow, for pollution abatement, will become increasingly more difficult to achieve. Similar to water resource development, elimination of pollution must also be on a basin-wide approach. In summary the Federal Government has a substantial investment in the Puget Sound area.

In multipurpose projects			$80,000,000
In navigation	"	over	$20,000,000

In flood control projects	over	$2,000,000

and in maintenance of channels, navigation projects and flood control projects nearly $6,000,000 annually.

For projects to be constructed in 1962 and 1963	$4,000,000
For recommended projects	$43,000,000

Local agencies have a large and difficult problem and I wish to assure you that the Corps will cooperate in every way possible in your efforts.

MR. BERGERSON: Thank you, Mr. Stein, for reading that last statement. It was one which I would have made reference to had you not done so.

We are now down to Part 5 on the agenda, the statements or presentations by invitees from industries, cities, Federal agencies and water resource users. I've had requests from several people to get on early on this part of the program. They will be unable to be here tomorrow, so they want to make their appearance today. They have assured me their statements are short and they will make them and be about their business.

The first speaker I'm going to call on will be Tom Wimmer, who will be speaking as an individual.

Tom Wimmer.

STATEMENT BY MR. THOS. O. WIMMER

MR. WIMMER: Mr. Chairman, conferees, ladies and gentlemen, my name is Tom Wimmer. I am entering this statement as a citizen of the State of Washington. My interest in water pollution problems have, I suppose, generated from my long association with sports clubs' activities and recreation and conservation groups.

I'm particularly gratified today to hear some of the things that the sportsmen and the conservationists have talked about for so many years, today are coming to light as truths from the members of the agencies who have made statements here.

The people of the State of Washington, in 1945, by Legislative action, created the Pollution Control Commission, an agency at the State level designed to cope with the mounting problems of pollution.

Since that time, the enforcement of those laws has been accomplished primarily through education and cooperation. Surprisingly enough, our Pollution Control Commission has done an excellent job of pollution abatement through this philosophy.

Eighty-seven to ninety percent of the industries in our State are in compliance with the waste discharge permit requirements of the Pollution Control Commission. We would not be here today if the small minority, but the largest polluters of our industrial family would assume their proper responsibility.

Every municipality of any size in the State are on programs of abatement, either in the planning stage or in operation. The City of Seattle alone is spending upwards of a hundred and fifty million dollars to rid their area of pollution.

The Atomic Energy Commission at Hanford, Washington, has spent a hundred and fourteen million dollars to prevent pollution of the Columbia River and they are spending two million dollars a year for further protection.

Practically every citizen and most all industries are charging themselves through sewer service charges, taxes, or investing in capital improvements, to carry out the requirements of the Pollution Control Commission.

The thirteen percent of the industries who will not conform and will not cooperate, discharge toxic industrial waste materials into the public waters, which has an oxygen demand equal to the oxygen demand of domestic sewage from a population over five times that of the State of Washington.

What special privilege makes these industries immune to the laws that control the rest of the people of our State?

I, as a citizen, firmly believe that the people of this State are well qualified to manage their own affairs, free from outside interference. However, in this particular instance, when the philosophies of education and cooperation are no longer effective in enforcing the laws, that all of the people of the State are duty-bound to uphold, when large corporations use their prestige and influence in the community to confuse the issues and distort the truths, so they can circumvent these same laws that we all must live by, then I am just as firmly convinced that the Federal Government has a duty and a responsibility to assist our State in enforcing our laws for the preservation of our Democratic way of life.

The pollution control laws of our State are good laws. They have been used as models throughout our country but the frustrations caused by the failure of these laws to control the more flagrant pollution violators is evidence enough that the Pollution Control Commission of the State of Washington must turn to the Federal Government for assistance in enforcement of those laws.

I appreciate, gentlemen, the opportunity afforded me to submit this statement.

Thank you.

CHAIRMAN STEIN: Any questions? (No response)

MR. BERGERSON: Thank you, Mr. Wimmer. The next speaker will be Senator Gissberg, who is representing the Sulphite Workers' Union of Everett.

STATEMENT BY SENATOR WILLIAM A. GISSBERG

SENATOR GISSBERG: Thank you very much, members of the conference committee. I, at the outset, wish to make it perfectly clear that I am not speaking today in any capacity as a State Senator of the State of Washington, but only as the attorney for seven local labor unions in Everett, Washington. And I might say that all of the seven labor unions which I represent have heretofore petitioned the State Pollution Control Commission for leave to intervene in the Pollution Control Commission hearings, and as such, I have personally had an opportunity to participate in those portions of the pre-hearing conferences to which Mr. Riley alluded at the outset of these hearings and which are now being conducted by a pre-hearing conference examiner employed by the State Pollution Commission in Seattle, Washington.

All of the labor unions and the members which I represent, have a direct interest in the hearings that have heretofore been conducted and this hearing. I say that because four of the seven Everett labor unions which I represent have, as members, twenty-eight hundred and thirty employees of the affected pulp mills in the City of Everett and Lowell, Washington. This is not to talk about the many other employees of pulp mills which are situated other than in the City of Everett and Lowell, Washington. Of course, I do not represent those particular local unions; I do not have the figures as to the number of employees which are directly employed by those pulp mills.

Of course, it goes, I think without saying, but yet it has to be said that of those twenty-eight hundred and thirty employees, their families as well as themselves are totally and completely financially dependent upon the continued operation of the mills. And as such, those employees and their families are concerned with the results of this hearing and any future action which may be taken by the Federal Government in the pollution field.

We are encouraged by the opening remarks of Mr. Quigley, who, when he opened these hearings commented that the Federal Government is here to "look, listen and learn" -- to "appraise the extent of pollution and to work with the industry to achieve a reasonable, sound approach to pollution abatement."

It is my personal and hopeful belief that those words of Mr. Quigley will not turn out to be hollow in any sense of the word. We believe that the history of the past steps, contrary to what has been said by many speakers, taken by the Everett pulp mills to abate pollution, have been reasonable and sound; and that they have been taken in accordance with the public policy which has been enunciated by the State Legislature in the Pollution Control Act.

Governor Rosellini stated that we have a good State Pollution Act and we agree with him. The statutory public policy of the State, as encompassed by the State Pollution Control Act, is to maintain the highest possible standards and I quote, "to insure the purity of all waters of the State consistent with public health and public enjoyment thereof, the propagation and protection of wildlife, birds, game fish and other aquatic life and consistent with the industrial development of the State" -- and I don't think that we should lose sight of that stated public policy that the water purity of this State is to be achieved under the highest possible standards consistent with the industrial development of the State.

The workers of the Weyerhaeuser Pulp Mill in particular, situated in Everett, are fearful that the action now taken by the State is not consistent with the industrial development of the State. They have been advised -- the workers of the Weyerhaeuser Pulp Mill have been advised by their employer that under existing economic conditions and production capacity and consumer requirements, it will not be economically feasible for the Everett Weyerhaeuser Mill to fulfill the requirements of the permit of the Pollution Control Commission.

My clients ask -- these people ask -- these employees ask the Federal Government to take those economic facts of life into consideration to the end that these employees will not lose their employment and to the further end that pollution abatement may continue, consistent with the public health and the industrial development of the State.

Lastly, and speaking now to the nature of the delays, if any, being encountered in abating the pollution, which I understand of the Federal Act, must be found -- I do not believe that there are delays. But assuming and not admitting that there are such delays, the nature of the delays as used in the Federal Act, are ones that are contemplated and provided for by the statutory laws of the State of Washington.

I think that there has been a lot said here with respect to the factual patterns evolving in the use of the waters of Port Gardner Bay fronting Everett with respect to fish life. There has been a lot said about steelhead runs in the Snohomish River and I want you gentlemen to know that as an individual, I was born and raised in Everett and I know something of where I speak when I talk about fishing in Port Gardner Bay and the Snohomish River and steelhead fishing in the Snohomish River. And I wish to say for the record that this last salmon-fishing season, this last fall, by the admission and statement of all persons, including pioneers in the Everett area, has resulted in a consensus of opinion that the King Salmon run, as far as sport fishing is concerned in Port Gardner Bay, was better this past year than any year for the past twenty years. And peculiarly enough, these fishermen -- these sports fishermen were fishing immediately adjacent to the two pulp mills involved, Scott Paper Company and Weyerhaeuser Paper Company, and this I state from personal first-hand knowledge over a period of years.

As far as the steelhead run is concerned in the Snohomish River and the statements made by the Department of Game, I can only say this, that it is my understanding that the last week -- the last week's steelhead that are entering the Snohomish River has produced one of the finest steelhead runs in the history of the State of Washington in the Snohomish River.

I simply make that point, not so much as to dispute the fine theoretical sounding phrases made by the various

Department heads here today, but simply to give to you another view and a view of a lay person who does not have the biological, at least, facts involved, but who certainly has enough observation or ability to observe when fish are being caught and when they are not being caught.

Lastly, and in this capacity, I do want to talk as a State Senator -- I wish to say that if this is going to be the conclusion of the State's presentation, I am disappointed at the failure of the State Department of Commerce and Economic Development and the Department of Natural Resources to speak out on this problem at this hearing and if that be the case and if they have not entered a statement into the record, unbeknowns to us, then I can only conclude that they have been kept under wraps.

Thank you.

CHAIRMAN STEIN: Thank you, Senator. Are there any questions?

(Applause)

(No response)

MR. BERGERSON: Thank you, Mr. Gissberg. The next speaker will be Mr. John Migdula of the Sportsman's Council.

STATEMENT ON BEHALF OF
WASHINGTON STATE SPORTSMAN'S COUNCIL

(By Mr. John Migdula)

MR. MIGDULA: Mr. Chairman, conferees and ladies and gentlemen, my name is John C. Migdula and I live in Tacoma, Washington. I am the Chairman of the Pollution Control Committee of the Washington State Sports' Council. It's composed of a hundred and sixty-five clubs throughout the State in thirty-eight of the thirty-nine counties.

The membership of this organization is from all walks of life.

Now, as we all know, pollution is a National problem. It is also a problem in this State -- this State is no exception. I recall in the National Conference on Water Pollution in December of 1960, called by the President, when Surgeon General Burney -- the then Surgeon General, stated that "the condition of our National waters is a National disgrace".

For years now, we have been hearing about different concepts about pollution control. On one side, we have the group which says, "We can control this pollution by the dilution concept." We say that "the solution of the pollution problem is not through dilution".

(Laughter)

As you may know, the Pollution Control Commission issued standards on May 24th, 1961 to ten pulp mills. Nine mills do not wish to comply, one pulp mill does.

I think, Mr. Chairman, that this conference should take into consideration perhaps other types of processes on pulp mill production. There was some publicity recently about what they call a "hydrotropic" or a "semi-hydrotropic" process; and the claim is, of this process, that it will practically eliminate both air and water pollution.

At this time, I would like to read, Mr. Chairman, the resolution passed by the Washington State Sports' Council.

The following resolution on Pollution Control was passed at the 111th quarterly meeting of the Washington State Sports' Council on December 10th, 1961, in Yakima, Washington:

Whereas, the Washington State Sportsman's Council has as one of its goals, according to our Constitution:

"To prevent pollution of all waters of the State by requiring new industries and communities to provide adequate treatment by proper installations and planning before discharging wastes into the public waters and to bring about eradication of existing pollution as rapidly as possible." (Article IV, Section 2(a)) (emphasis supplied)

Whereas, the National Conference on Water Pollution of December, 1960, called by the President of the United States recommended a Credo which states the following:

"(a) Users of water do not have an inherent right to pollute;

"(b) Users of public waters have a responsibility for returning them as nearly clean as is technically possible;

"(c) Prevention is just as important as control of pollution." (emphasis supplied)

Whereas, the most feasible method of satisfying increased demands for clean water by an expanding population and industry is through optimum re-use, a practice rendered difficult if not impossible by pollution from industrial, domestic and soil erosion sources; and

Whereas, pollution by industrial wastes from pulp mills and such sources as detergents, insecticides, pesticides, all produced by industry for sale, not only endangers the public health and safety, but also damages water for many beneficial uses, including fish and wildlife and other recreation uses; and

Whereas, the Federal Water Pollution Control Act of 1956, as amended by the 87th Congress, offers increased opportunities for municipalities to install waste treatment facilities; and

Whereas, the Pollution Control Commission of the State of Washington has issued "clean-up" orders to ten pulp mills in the State to move toward the goal of eradicating the cancer of pollution; and

Whereas, one pulp mill has agreed to comply with such orders, nine refusing to comply;

Be it Resolved, that the Washington State Sportsman's Council in Convention Assembled at Yakima, Washington, this 10th day of December, 1961, hereby;

1. Endorses and supports the Pollution Control Commission of the State in its directives of May 24, 1961, to the ten pulp mills to "clean-up" their pollution of the public waters.

2. Demands that the pollution of public waters by all water users be stopped at the sources.

3. Invites all Federal, State and local Governmental agencies, as well as civic, fraternal, women's and conservation organizations, and industry, to join us in helping to clean up pollution in the lakes, streams, rivers, Puget Sound and all other public waters of the State of Washington to accomplish this objective.

4. Urge complete and vigorous enforcement of State laws and local ordinances at the earliest possible time to obtain clean water.

5. Demands appropriate Federal water pollution control action to eradicate the cancer of pollution when necessary on interstate and navigable intrastate waters to obtain clean water.

Be it further resolved that copies of this resolution be given widespread distribution to press and radio-TV mediums; all local affiliates of this organization; the State Department of Health and/or the State Water Pollution Control Agency; the Secretary of the United States Department of Health, Education and Welfare; and the National Wildlife

Federation.

Mr. Chairman, I would like to request at this time that we submit a formal statement perhaps in two weeks to this conference, with copies going to the Chairman and also copies to the Pollution Control Commission.

CHAIRMAN STEIN: Can't you do that before then -- before two weeks? Do you think you can get a statement in in a week? We wouldn't like to hold this record open too long.

MR. MIGDULA: Whatever you say, Mr. Chairman.

CHAIRMAN STEIN: I think we will hold this record open for revisions of statements for a week. Would that be reasonable?

MR. MIGDULA: That's reasonable. Thank you very much, Mr. Chairman.

CHAIRMAN STEIN: Are there any questions or comments?

(No response)

MR. BERGERSON: Thank you, Mr. Migdula.

(Written statement and attached data from Mr. John C. Migdula, Chairman, Pollution Control Committee, Washington State Sportsmen's Council, received by the Reporter on February 9, 1962, herewith entered into the record as follows:)

Mr. Chairman and members of the Conference and Commission, my name is John Migdula and I reside in Tacoma, Washington, Post Office Box 282. I am the Chairman of the Pollution Control Committee of the Washington State Sportsmen's Council.

The following statement is presented as a result of your cordial invitation in a letter dated January 8, 1962, subsequent to a news release by the Commission dated January 2, 1962. This Conference, as stated in the news release will be concerned with pollution problems in Puget Sound, the Straits of Juan de Fuca, and their tributary and estuarial waters.

More specifically, I understand that the Conference desires the considered views of the public as to these three questions:

"(1) the occurrence of pollution in Puget Sound and the Straits of Juan de Fuca, plus tributaries and estuarial waters;

"(2) the adequacy of measures taken toward abatement of the pollution;

"(3) nature of delays, if any, being encountered in abating the pollution."

For the record the Washington State Sportsmen's Council is composed of 165 affiliated Sportsmen's Clubs, active in 38 of the 39 Counties of this State.

The Washington State Sportsmen's Council has as one of its goals in its Constitution, a goal adopted in 1938, the following:

"To prevent pollution of all waters of the state by requiring new industries and communities to provide adequate treatment by proper installations and planning before discharging wastes into the public waters and to bring about eradication of existing pollution as rapidly as possible." (Article IV, 2 (a))(emphasis supplied)

If you will forgive our pride, the first Director of Pollution Control of this State has acknowledged that we "have long recognized the dangers in the ever increasing pollution problem" in this State, and that "most of the support" of the program against pollution has come from our Council. (See: Progress Report No. 15, Pg. 2, dated February 1, 1948).

Before addressing myself to the three specific questions above, with your gracious indulgence, I would like to make a few preliminary observations by way of setting the balance of our views in perspective.

The importance, indeed absolute necessity, of clean, pure water has long been recognized, as to our way of life as individuals, and certainly as to our industrial civilization. But the fact is that "not one single drop has been added to this planet's water supply since genesis and none is going to be. What has been added is people." (Page 25, CBS Reports "The Water Famine" CBS Television Network, copyright Columbia Broadcasting System Inc. October 19, 1961).

As long ago as 1930, the late and distinguished Justice Oliver Wendell Holmes and the United States Supreme Court ruled: "A river is more than an amenity, it is a treasure." (See: New Jersey vs. New York, 283 U. S. 336, at 342, 51 S.Ct. 478, 75 L.Ed. 1104), quoted, and specifically relied upon by the Supreme Court again as recently as May 16, 1960, (See: United States vs. Republic Steel Corp., 4 L. Ed. 2d 903, at 910).

That we have too often, and far too long, betrayed our treasured heritage of clean pure water is also apparent; "the mistakes of Twentieth Century America - the overuse of water, mismanagement, pollution". (Page 14, CBS Reports, "The Water Famine" CBS Television Network, Copyright Columbia Broadcasting System, Inc. Oct. 19, 1961).

In the official report "Clean Water - A Challenge to Nation", a summary of the National Conference on Water Pollution in December, 1960, called by the then President

Eisenhower, Dr. Leroy E. Burney, Surgeon General and head of the U. S. Public Health Service at the time of the above named Conference had this to say: "The condition of our waters is a national disgrace (emphasis supplied). It is tragic for the world's richest, most powerful and most technologically advanced nation to foul its own nest, limit its own growth and threaten the health of its people."
(Page 8)

This National Conference on Water Pollution of December 1960 recommended a National Credo which states the following:

"(a) Users of water do not have an inherent right to pollute;

"(b) Users of public waters have a responsibility for returning them as nearly clean as it technically possible; and

"(c) Prevention is just as important as control of pollution."

(emphasis supplied)

That immediate action to protect and preserve our treasured heritage of clean, pure water is vital is recognized by all, regardless of political affiliation. That is apparent in the present administration also, because, in his special message to Congress on February 23, 1961, President Kennety recognized the critical importance of immediate action to eliminate pollution of water and other resources.

The President of the United States said:

"From the beginning of civilization, every nation's basic wealth and progress has stemmed in large measure from its natural resources. This nation has been, and is now, especially fortunate in the blessings we have inherited. Our entire society rests upon - and is dependent upon - our water, our land, our forests and our minerals.

"Wise investment in a resource program today will return vast dividends tomorrow, and failure to act now may be opportunities lost forever."

So, the President is urging immediate action in a tradition and need which was great even before this age of exploding population.

This State's responsibility of insuring clean water is clear. The waters of this State belong to the public, not to industry nor to municipalities.

The Pollution Control Commission of the State of Washington is basically charged with the establishment and enforcement of water pollution elimination and control, as described in the Law of 1945, Chapter 216, Revised Code of Washington 90.48 as follows: "It is the public policy of the state to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game fish and other aquatic life, in the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control pollution of the waters of the state."

From the inception of this Commission the pulp mills have had a consistent history of violation of the State law requiring elimination of pollution. Indeed, in its December 1, 1945 Progress Report No. 2 this Commission flatly stated "waste from pulp mills continues to be the major source of industrial pollution of the waters of the State".

That the sulphite waste liquor pulp mills of this State are the major industrial polluters of our waters has been recognized ever since by this Commission. (See: for example, Progress Report No. 4, April 1, 1946: Progress Report No. 25, July 31, 1950; Progress Report No. 26, Nov. 30, 1950; Progress Report No. 28, July 31, 1951; Progress Report No. 32, Nov. 30, 1952.)

That this is still the fact is apparent from the testimony at this very Conference on January 16, 1962 by James P. Behlke, of this Commission's staff, that 7 pulp and paper mills dump enough pollution into Puget Sound every day to equal sewage from 8,700,000 people. This Commission also knows that the sulphite pulp mills have a record of 41% compliance with this Commission's orders, compared to 93% compliance by the other 532 plants of all other industries in this State.

Incidentally, the basic attitude of self concern for greater profit by the pulp mills, as well as their short term thinking is best shown by the fact that in Volume III called Fisheries-Conservation-Propagation-Regulation, February 1960, published under the direction of Milo Moore, former Director of Fisheries, it states on page 158 the following: "Water used for industrial purposes must ... meet certain requirements. For example, pulp mills require water free from color, manganese or iron; low in hardness and silica; and sterile. Some branches of the chemical industry require water of such purity that it approaches the properties of distilled water."

More than incidentally, this same State expert has asked the pulp mills in the forementioned Volume III the following: "In view of the standards for water used for domestic and industrial purposes it seems paradoxical that there should be any question as to the need for rigid standards for protection of our fish and shellfish industry. What reaction would you expect if some other industrial activity rendered the water supply of a pulp mill so altered as to reduce its productive value by 50 percent?"

Indeed we now ask as we have for so long: What right does an industry have to alter the purity of public water for another industry, such as the fish, shellfish industry and sports fishing and recreation?

In any event, it is too clearly established by scientific research to any longer be open to question that sulphite waste liquor is toxic or poisonous to marine life. (U. S. Dept. of Commerce Bulletin No. 6-1931; State Everett Harbor Study - 1940; U.S.P.H.S. Publications No. 87 and 175 - 1951; State Grays Harbor Study - 1940; Washington State Fisheries Bulletins 1953-1955; and State Columbia River Study - 1943.)

A leaflet published by the U. S. Public Health Service, based on the National Conference on Water Pollution, called "Fish, Wildlife, and Clean Water" has made two important points in this respect:

(1) "Fish kills provide a yardstick for measuring the biological safety of our streams, lakes, and coastal waters.

(2) "Big fish kills usually are spectacular. Yet it is the slow, unspectacular erosion of the environment of fish and wildlife by pollution that causes the greatest losses and is the source of the greatest concern to conservationists. Fish kills cannot take place unless fish are there to be killed." (emphasis supplied) "A gradual increase in pollution may slowly kill off the fish population in such a way that the dead fish or the decline in numbers is not noted. The

> fishery is destroyed without exciting public protest because few people realize what is happening." "Public agencies have been carrying out programs of fish and wildlife restoration for many years. Yet, according to the U. S. Fish and Wildlife Service, the total area of fish and wildlife habitat rendered unproductive by water pollution and other causes each year is greater than that created by restocking streams and other restoration measures." (From leaflet "Fish, Wildlife and Clean Water", U.S.P.H.S.)

The people of this State have not earned, and do not intend any longer to tolerate, the Sisyphus-like punishment inflicted upon our waters, and so, upon us.

As to the adequacy of the measures taken to date to protect our waters and to eliminate pollution, the short answer, we suggest, is that

(1) The problem which our State law was designed to prevent is still with us, and worse than ever now.

(2) The sulphite waste liquor producers have suggested, at one time or another, that

- (a) this material is not toxic to fish and other life;
- (b) even if it is, it would cost too much to correct this condition;

(c) in any event, dilution is the solution to the pollution problem;

(d) as a last resort, the problem should be studied further, and

(e) any action suggested or ordered for, and by, them is a big surprise and violates their legal "right" to pollute public waters.

We suggest that none of the sulphite waste liquor producers' arguments above have, even on superficial analysis, any weight.

The dilution solution to pollution has proved its own ineffectiveness because it has been tried through the years, and the pollution problem is worse than ever. And, this Commission discarded this "solution" after public hearings on July 21, 1960, on the Gunter-McKee recommendations which (1) were only a review of the literature (2) involved no tests in the field (3) ignored the findings and research of 30 years standing by the Washington Department of Fisheries, supported by affidavits from unchallengable experts, including the Director of Commercial Fisheries for the U. S. Fish and Wildlife Service. Our statement in this respect is attached hereto and made a part hereof.

The unrealistic and unsupportable position of the sulphite waste liquor producers is the primary reason for the delay in the elimination of pollution in the waters of this

State.

Indeed, of the ten mills cited in this Commission's "Clean up" Directive of May 24, 1961, two mills have already agreed to comply - Crown-Zellerbach of Port Angeles, and Inland Empire Paper Company. (T-413).

We are shocked by the failure of the other sulphite waste liquor producers, who are still resisting, to mention, as far as we know, the hopeful and more efficient hydrotropic pulping process, as set forth in Paper Industry, issues of July and September, 1960, the process designed specifically to move toward the goal of eliminating both water and air pollution by this industry.

Unless, therefore, the State and Federal governments vigorously and emphatically order immediate elimination of sulphite waste liquor pollution, it may be that the people of our nation will feel that the generalization of Secretary of Interior Udall is applicable to this State:

> "---and the truth of the matter is, nothing has been done - very little has been done at the local level, usually because some of the people that pollute ...... industries are very powerful at the local level and have a great deal to say about local legislation, and the same thing, at times, at the state level". (Page 13, CBS Reports, "The Water Famine", CBS Television

Network, copyright Columbia Broadcasting System, Inc. Oct. 19, 1961)

In conclusion, we attach hereto, and make part hereof, the Resolution of the Washington State Sportsmen's Council, adopted in Yakima, Washington on December 10, 1961, which more than welcomes the participation of the Federal Government in the solution of this problem with which this State, has, to date, been unable to cope.

Respectfully submitted,
John C. Migdula, Chairman
Pollution Control Committee
Washington State Sportsmen's Council

(Attached data follows on next succeeding two pages)

The following resolution on Pollution Control was passed at the 111th quarterly meeting of the Washington State Sportsman's Council on December 10, 1961 in Yakima, Washington

WHEREAS, the Washington State Sportsman's council has as one of its goals, according to our Constitution:

"To prevent pollution of all waters of the state by requiring new industries and communities to provide adequate treatment by proper installations and planning before discharging wastes into the public waters and to bring about eradication of existing pollution as rapidly as possible." (Article IV, 2 (a) (emphasis supplied)

WHEREAS, the National Conference on Water Pollution of December 1960 called by the President of the United States recommended a Credo which states the following:

"(a) Users of water do not have an inherent right to pollute;

"(b) Users of public waters have a responsibility for returning them as nearly clean as is technically possible; and

"(c) Prevention is just as important as control of pollution." (emphasis supplied); and

WHEREAS, the most feasible method of satisfying increased demands for clean water by an expanding population and industry is through optimum re-use, a practice rendered difficult if not impossible by pollution from industrial, domestic, and soil erosion sources; and

WHEREAS, pollution by industrial wastes from pulp mills, and such sources as detergents, insectides, pesticides, all produced by industry for sale, not only endangers the public health and safety but also damages water for many beneficial uses, including fish and wildlife and other recreation uses; and

WHEREAS, the Federal Water Pollution Control Act of 1956, as amended by the 87th Congress, offers increased opportunities for municipalities to install waste treatment facilities; and

WHEREAS, the Pollution Control Commission of the State of Washington has issued "clean-up" orders to ten (10) pulp mills in the State to move toward the goal of eradicating the cancer of pollution, and ;

WHEREAS, one pulp mill has agreed to comply with such orders, nine (9) refusing to comply; now, therefore

BE IT RESOLVED, that the Washington State Sportsman's Council in Convention Assembled at Yakima, Washington, this 10th day of December, 1961, hereby;

1. Endorses and supports the Pollution Control Commission of the State in its directives of May 24, 1961 to the ten (10) pulp mills to "clean-up" their pollution of the public waters.

2. Demands that the pollution of public waters by all water users be stopped at the sources.

3. Invites all Federal, State and local governmental agencies as well as civic, fraternal, women's and conservation organizations, and industry, to join us in helping to clean up pollution in the lakes, streams, rivers, Puget Sound, and all other public waters of the State of Washington to accomplish this objective.

4. Urge complete and vigorous enforcement of State laws and local ordinances at the earliest possible time to obtain clean water.

5. Demands appropriate Federal water pollution control action to eradicate the cancer of pollution when necessary on interstate and navigable intrastate waters to obtain clean water.

BE IT FURTHER RESOLVED that copies of this resolution be given widespread distribution to press and radio-TV mediums; all local affiliates of ths organization; The State Department of Health and / or the State Water Pollution Control agency; the Secretary of the U. S. Department of Health, Education, and Welfare; and the National Wildlife Federation.

Pollution Committee Report

The various committees of the club are carrying on the work and programs of the club during the summer recess of the club's regular meetings.

The pollution committee of the club is having its hands full keeping up with the developments concerning the acceptance or rejection of the Gunter-McKee recommendations for water purity.

These standards are strongly supported by those who would pollute our waters for profit, based on the false assumption that the pollution problem will be solved by the dilution of pollutants into the confined water areas of Puget Sound.

The Pollution Committee of the club after full discussion, passed and presented to the State Pollution Control Commission on July 21, 1960, the following statement:

"You have asked all interested parties to submit their views as to the necessity and desirability of adopting the standards suggested by the Gunter-McKee Report to this Commission.

"We are opposed to the adoption of these standards on either a permanent or even a temporary basis. We strongly urge that you adopt instead the standards recommended by the Department of Fisheries on January 7, 1958, and presented by the Director of Fisheries to this Commission in a public hearing on February 4, 1958, in Olympia, Washington.

"The Department of Fisheries' standards represent 30 years of actual tried and tested experience in Washington waters of the effect of pollution of all types on marine life. This is supported by 30 years of scientific research by the Department of Fisheries of this state. The Department of Fisheries' standards are further supported by scientific findings with affidavits from eight scientists, including the Director of Commercial Fisheries for the United States Fish and Wild Life.

"On the other hand, the Gunter-McKee Report and its recommended standards are deficient because:

"1. A statement on page 3 of the Gunter-McKee Report seriously limits the usefulness and conclusions by the admission: 'We have not performed direct experiments . . .' This astounding admission is repeated again on page 74 of the same report.

"2. The Gunter-McKee Report is merely a collection of information of the effect of sulphite waste liquors on oysters. The effect of such liquors on all other forms of marine life are entirely ignored, as is admitted on page 2 of the Report. To adopt the Cunter-McKee standards for sulphite waster liquor based on an oyster study is as ridiculous as to decide where a garbage dump should be located based upon smell instead of such things as diseases carried by rats, pollution of drinking water and other considerations.

"3. The Gunter-MeKee report is inadequate because it takes for granted that pollution by sulphite waste liquor can be solved by dillution even though such a concept flies in the face of all scientific evidence where the waters are enclosed, as they are in Puget Sound. And this Commission knows that the Fisheries Department has proved that fully one-half of downstream migrant salmon in this state perish due to the effects of pulp mill pollution in specific areas.

"4. The Gunter-McKee Report by two out-of-state scientists, one of whose home is more than 1000 miles and the other more than 2000 miles from this state, rely heavily upon information supplied to these scientists which the report admits may have been censored to eliminate adverse facts. This is indicated in paragraph 3 on page 3 of the report.

"5. The Gunther-McKee Report is misleading in that it purports to minimize pollution while at the same time it advocates polluting areas not now polluted. If sulphite waste liquor pollution is a necessary evil, the Gunter-McKee Report assumes that is is necessary, and says little about its being evil. It is our view that pollution of clean water by anyone, including sulphite waste liquor producers, is as morally wrong and is as legally indefensible as the use of public streets and highways and lands adjoining each as garbage dumping areas.

"The whole controversy over the total pollution problem can be summed up in two ways:

"1. There is a group on one side that is trying to make the standards as easy on themselves as possible financially.

"2. There are the other groups on the other side of the fence, conservationists, sportsmen, and the general public who want to conserve our God-given natural resources for themselves and future generations to enjoy.

This Commission was created in 1945 by an Act which declares that:

> " 'It is the public policy of the state to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, in the industrial development of the state and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state."

"We note that both houses of the state legislature and the Governor are dedicated to the elimination of the pollution problem created by sulphite waste liquor producers and others. The legislature and the Governor did not dedicate the people of this state to inaction against or the reluctant acceptance of the cancer of sulphite waste liquor pollution.

"We are shocked that the Commission, as late as April 21, 1960, 15 years after its creation, could publicly admit in a news release that 'so far there has been no numerical standards on the amount of sulphite waste liquor which could be discharged by any of the operating pulp mills of the state.'

"It seems to us tragic that after 15 years of inaction toward the establishment of standards the Commission should awaken and rush headlong into establishing standards as scientifically unsupportable as those of the Gunter-McKee Report.

"The only standards consistent with the policy of the act are those advocated by the Department of Fisheries. The Commission must accept them particularly since apart from their economic inconvenience to sulphite waste liquor producers, they are the only standards which are the result of scientific experience over a period of 30 years in the waters of this state and supported by the Federal Government. In this context the adequacy of the Gunter-McKee Report pales into insignificance.

"We challenge the Pollution Control Commission to hold a hearing on the Department of Fisheries' standards for pollution control and elimination. So far as we can learn, neither this Commission nor the Gunter-McKee Report have ever challenged the scope, the extensive 30 years of research, or the validity of the conclusions of the Department of Fisheries which were endorsed by the United States government. In this context the Gunter-McKee Report and its recommended standards are deceptive and not a realistic statement of the polluted condition of the waters of the state of Washington.

"In the interest of saving time I am submitting to the Commission the statement I have just delivered as well as an additional item entitled "The Gunter-McKee Report" from the Tacoma Sportsman's Club's Pollution Committee.

"In conclusion the Tacoma Sportsman's Club again goes on record and insists that the goal of this Commission be to clean up pollution by sulphite waste liquor and other pollutants dumped into our public waters and to adopt the only standards worthy of the name—those recommended by the Director of Fisheries on February 4, 1958, before the Pollution Control Commission at its hearing on that date.

"Over the signature of each member of the Tacoma Sportsman's Club on the back of his membership card is the following pledge:

> " 'I pledge as an American, to conserve the natural resources of my country, its soil, minerals, forests, waters, and wild life . . .'

"When a member in inducted into the Tacoma Sportsman's Club he takes the following pledge before the other members:

> " '. . . I shall jealously guard the heritage which has been entrusted to me and my generation, and shall endeavor to pass that heritage on to future generations, unsullified and unspoiled. To accomplish this, I shall fight vigorously against pollution of air and water, and against destruction and despoilation of soil, forests and wild life. I shall encourage those who practice conservation by replacing that which they take, and oppose those who ruthlessly exploit our natural resources for selfish gain.'

"We respectfully submit that the members of the Pollution Control Commission who should consider a public office a public trust can do no less."

Immediately after completion of the presentation of the above statemnet by this reporter to the Pollution Control Commission there was a sportaneous burst of applause from the audience by the various other interested groups who are opposed to the adoption of the Gunter-McKee recommendations—the only applause given during the daylong hearing from the long list of presentations. The position taken by the club's Pollution Committee certainly indicates solid outside support around some areas of the state.

I wish to thank Ray Zittel and Dan Johnson, members of the Pollution Committee for making the trip to Olympia to observe and to take part in the proceedings. Also, I extend my appreciation to the other members of the committee for their help and advice in preparing the statement for presentation to the Pollution Control Commission of the state.

The Pollution Control Commission postponed action at the hearing.

JOHN C. MIGDULA,
Chairman

MR. BERGERSON: The next speaker will be Mr. Harold Miller of the Seattle Metro Council.

STATEMENT ON BEHALF OF
MUNICIPALITY OF METROPOLITAN SEATTLE

(By Harold E. Miller)

MR. MILLER: Mr. Chairman and conferees, I have a written statement to present to the conference. I will not take time to review it. It's all here and furthermore, the subject has been fairly well covered by previous speakers.

I would like to straighten out the record on the cost of the Metro project. The Metropolitan Council has authorized the expenditure of a hundred and thirty million dollars over a period of the next ten years. It has authorized the sale as needed, of a hundred and twenty-five million dollars in bonds. The estimated construction cost of the ten-year program is a hundred and eighteen million. The cost of acquisition of existing facilities is another twelve million, making then the total of a hundred and thirty million to be expended.

I'll be glad to -- and I might say that this ten-year program will solve ninety-nine point some odd percent of the problems now existing or anticipated to exist in the area in the next ten years. I'll be glad to answer any questions that anyone might have.

CHAIRMAN STEIN: Do you have any questions? Any questions?

(No response)

CHAIRMAN STEIN: Thank you.

MR. BERGERSON: Thank you, Mr. Miller.

(The following statement submitted by Mr. Miller is herewith copied into the record as if read:)

The Municipality of Metropolitan Seattle was formed by a vote of Seattle area residents on September 9, 1958.

Since, in this formation election, the voters authorized Metro to function in the field of metropolitan sewage disposal, it appears appropriate to establish a beginning point from which to measure progress, the situation which existed in the area at that time with regard to sewage disposal and related public health and pollution problems.

Fortunately, the situation then existing is thoroughly documented in the report of the Metropolitan Sewerage and Drainage Survey* which had been conducted under the joint sponsorship of the State of Washington, King County and the City of Seattle and completed just prior to the election. Following is a brief summary taken from this report.

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*Metropolitan Seattle Sewerage and Drainage Survey, 1956-58, by Brown and Caldwell, Civil and Chemical Engineers.

Sewage from 53 percent of the metropolitan population of over 700,000 was being discharged into environmental waters without treatment through some 60 scattered raw sewage outfalls into the Duwamish River, Elliott Bay and Puget Sound.

From 10 to 15 million gallons per day (mgd) of treated and untreated sewage, high in nutrient (fertilizer) substances such as phosphorous and nitrogen were being discharged into Lake Washington at scattered points around the periphery of the lake.

Because of soil characteristics common to most of the area, effluent from thousands of malfunctioning septic tanks was rising to the ground surface and in many areas was flowing in open roadside and other drainage ditches. Residents in over 100 square miles of area which was developed sufficiently to warrant construction of public sewers were unable to construct local sewers because no practicable method of disposal was available. At the same time, septic tank construction was necessarily prohibited in many areas by the health agencies.

What did all this add up to?

Not a single foot of salt water shoreline, within the area and very little fresh water shoreline could be considered safe for recreational or other uses involving bodily contact.

The important fisheries resources of the Green-Duwamish River system were threatened with extinction.

Lake Washington was being degraded by excessive algal growths caused in large measure by the nutrient substances contained in sewage and sewage effluent. Algal associated, turbidity, slime and odor problems had reached nuisance proportions and according to studies by Dr. A. D. Edmondson and the Pollution Control Commission, the lake was rapidly approaching a state of eutrophication (permanent impairment).

Many areas served by septic tanks faced constant public health and nuisance problems. Millions of dollars were going "down the drain" annually in the construction and repair of septic tanks, many of which had little or no chance of success to begin with and most of which at best offered only temporary solutions.

Because the Pollution Control Commission and health agencies necessarily had to restrict both septic tank construction and the disposal of effluent from public sewer systems, orderly growth and development was stunted in many areas.

Though it has long been recognized that the practical solutions to the major problems could be achieved only through joint financing, construction and operation by cities and sewer districts of which more than 40 existed at that time, no single major sewage disposal problem had been solved despite numerous attempts to develop joint solutions through contractual relationships.

So much for the situation which led to the formation of Metro. Let us now consider what Metro has and is doing about it.

One of the first requirements of the enabling act is that the Metropolitan Council prepare and adopt a comprehensive sewage disposal plan. Fortunately, through the foresight of state, county and city officials, the Council had immediately available the previously mentioned report of the metropolitan sewerage survey. Included in this report was a recommended comprehensive sewerage plan together with cost estimates. This plan, after study by a technical committee, was adopted by the Council as the Metro comprehensive sewage disposal plan on April 22, 1959.

Since, in order to develop a basis for financing, it was necessary that the plan be engineered in considerably more detail than was possible in the preliminary report, the Council next employed consulting engineers to prepare a design report setting forth the required design details and estimates of cost. The design report was completed in July, 1960.

While this report was in preparation, the Council, recognizing that it would soon be faced with financing a program in excess of $100,000,000, employed financial advisers who, working as a team with the staff, bond counsel and consulting engineers, developed a basic plan of financing which would provide the construction, operating and maintenance funds as needed at a reasonable rate of interest.

As a result of these simultaneous engineering and financing efforts, the financial consultants were able to submit a preliminary financing report by the time the predesign report was completed. Thus by July 1960, the Council had before it a detailed engineering plan, a proposed 10 year construction schedule, detailed estimates of funding requirements and a financing plan which would provide the required funds as needed at reasonable service charges.

After review and approval of the various proposals by the Council Finance and Capital Improvements committees, the Council ordered preparation of construction drawings and specifications, preparation of an official financing statement and finally the call for construction and bond bids.

These actions culminated in June of 1961 by the sale of the first $20,000,000 of an authorized $125,000,000 in revenue bonds at an effective interest rate of 3.96285 percent and the award of some $8,000,000 in construction contracts.

Now, what does all this mean in terms of the problems previously reviewed?

Through the construction of two major and two smaller sewer systems and the acquisition by Metro of the new West Seattle system, (see attached map and construction schedule), Metro will:

a. Remove 40 percent of the sewage entering Lake Washington by 1963; 80 percent by 1964 and 98 percent by 1971.

b. Eliminate all sources of pollution in Puget Sound north of Shilshole Bay to the King County line by fall of 1962; all sources of pollution in Puget Sound proper by 1965 and all raw sewage discharges into Elliott Bay by 1971.

c. Eliminate the overflows of combined storm water and sewage now occurring during the recreational season along the west shoreline of Lake Washington by 1970.

d. Eliminate about 35 percent of raw sewage outlets into the Duwamish River by fall of 1963 and, gradually, all the remaining ones by 1968.

e. Over the next 10 years and, in the main, in the next five years, provide the basic trunkline, treatment and disposal facilities required to provide complete and permanent protection of our water resources and at the same time permit orderly and economical sewerage development by local agencies as required during the next 75 to 100 years, regardless of direction of growth or whether the growth is residential, commercial or industrial in nature.

As previously indicated, Metro now is under construction in a number of areas:

1. Filling of the site for the major sewage treatment plant at Renton has been completed, preparatory to beginning construction of the plant proper next summer.
2. Section I of the Eastside trunk involving the laying of 14,000 feet of 108-inch diameter pipe from the above plant site through the city of Renton is about 30 percent complete.
3. The new treatment plant at Carkeek Park is about 50 percent complete and will be finished during the 1962 recreational season.
4. A contract for the treatment plant at Richmond Beach has been awarded and work will commence shortly with completion scheduled for fall of 1962.

Bids will be called next spring on the following:

1. Section 2 of the Eastside trunk from Renton to Kennydale.
2. Renton sewage treatment plant.
3. Connecting sewers to the new Carkeek Park and

Richmond Beach treatment plants.

4. Matthews Beach pumping station and the Lake City tunnel from Matthews Beach to Lake Union.

A few words may be in order with regard to the relationships that have developed between Metro and local units of government.

1. In place of the hodge-podge formation of local sewerage districts and the tendency to go off in all directions, local unit boundary questions and local sewage systems are being laid out in general conformance with an area-wide comprehensive plan.
2. Local sewerage agencies are enabled to proceed with the planning of local systems and voter approval of bonds and U.L.I.D. formation is being attained much more readily.
3. Perhaps the best measure of the mutual faith, unity of purpose and spirit of cooperation which exists between Metro and local components is the fact that all of the sewerage agencies within Metro have voluntarily entered into a 50-year sewage disposal agreement with Metro - a mechanism which perhaps more than any other single feature enabled Metro to obtain an interest rate on its bonds which will save the people of the area millions of dollars over the next 35 or more years.

The record indicates that local units of government, concerned with sewage disposal and clean environmental waters have found in their federation in Metro the means to a common goal which by themselves they could not achieve and that they have done this not only without sacrificing control of local affairs, but have, in fact, strengthened their ability to do their job.

Perhaps it is a mark of progress also to note that the mayors, councilmen and county commissioners who represent the component agencies in the 16 member Metro Council have jointly produced the above results without a single dissenting vote to date.

(Exhibit A, "Construction Schedule" and Map of Comprehensive Sewerage Plan, herewith appended in "Appendix to Statement on Behalf of Municipality of Metro Seattle, by Harold E. Miller," as Appendix A and B.)

MR. BERGERSON: The next speaker will be Mr. Gruble, of the Pacific Coast Oyster Growers Association.

STATEMENT ON BEHALF OF PACIFIC COAST OYSTER GROWERS ASSOCIATION

(By Mr. Edward J. Gruble)

MR. GRUBLE: Mr. Chairman, on behalf of the citizens of the State of Washington, numerous civic-minded groups and allied fishing industries, all of whom have a vested right in our water resources, I want to welcome you and express our sincere heartfelt thanks to Governor Rosellini and Secretary Ribicoff for making this conference possible.

The pollution story in the State of Washington has been long and frustrating to those who have honestly and patiently tried to have abated in some degree, the huge problem posed by the pulp industry.

Conservationists and citizens, whose livelihood depends upon clean waters, have long been confronted with the spectre of one industry of such vast economic and financial magnitude that it has been able to continually and consistently stall the orderly and timely control of their pollution under the laws of this State.

Today, after some thirty years, pulp mill pollution in Puget Sound, its tributaries and estuarial waters, still remains as the major industrial problem in Washington State. More than ninety percent of all other industries and municipalities have either cleaned up or are in the process of doing so. Only certain segments of the pulp industry continue to resist.

Although some segments of the pulp industry have effected a clean-up in specific plants, we find a banding together of the industry under the auspices of the Northwest Pulp and Paper Association in a joint effort to circumvent and evade the pollution laws of this State. This effective banding together borders on collusion aimed at preventing enforcement of pollution orders issued by the Pollution Control Commission. These obvious collective efforts by the Northwest Pulp and Paper Association and its members take the form of propaganda disseminated through the press, speeches and statements before civic and industry groups, the production of motion pictures with wide distribution to schools and other social and civic groups, letters to employees suggesting possible loss of employment through shut-down of mills if forced to make expenditures for pollution control and abatement, infiltration of civic and sports groups in order to confuse and divide, and intimidation of local communities and businessmen with threats of shut-down if Pollution Commission orders are enforced. All these measures have made it virtually impossible for duly appointed local authorities to enforce existing laws without fear of possible political reprisals.

In addition, it must be noted that this industry, individually and collectively, is of such financial strength that injured parties cannot by litigation hope to successfully cope with the situation, and in fact, it becomes virtually impossible for State regulatory agencies, operating under fixed and limited budgets, to resolve this problem. The current pre-hearing conferences being conducted in Seattle are an excellent example of the ways and means by which mills ordered to clean up, prevent the orderly and timely schedule of hearings to be held. Legal maneuvering by pulp mill attorneys has already necessitated postponement of the original schedule of hearings as proposed by the hearing examiner. Intervention by some six hundred petitioners, many of whom have no special or direct interest, on behalf of the pulp mills is another example of roadblocks thrown into these hearings in order to exhaust and exasperate the legal authorities charged with abating this pollution.

These delaying tactics and many such past actions have cost the citizens of the State of Washington untold millions of dollars through lost taxes, payrolls and investments and continues to be injurious to the economic and industrial welfare of this great State. We therefore welcome this conference and will present as time permits, evidence to substantiate our charges. We strongly urge that immediate steps be taken to enjoin these gross pollutors from continuing to discharge their effluent into our greatest natural resource. We feel that the laws ot this State are adequate and fair, but require strong enforcement without fear or prejudice.

Specifically, we want to focus attention on several of the more flagrant pollutors in the pulp industry.

The Bellingham Pulp and Timber Company, located on Whatcom Waterway in Bellingham. This sulphite mill produces approximately four hundred and seventy-five tons of pulp per day and contributes some forty million gallons of spent liquor and wash waters into Whatcom Waterway, Bellingham and Samish Bays, as well as more distant points. This mill has consistently refused to acknowledge pollution of these areas. However, Whatcom Waterway has become such a cesspool of pulp mill pollution that it was selected by Life Magazine recently as depicting a prime example of industrial water pollution in the United States.

Experiments conducted in this area with live fingerling salmon resulted in one hundred percent mortality within three minutes. Sludge beds necessitating periodic dredging have been formed. The water is heavily discolored. Barnacles and other marine life have become extinct. This is pure and simple pollution. Outfalls exposed at low water exist in violation of temporary permits. Debris and wood chips are found miles from the mill. Areas of Bellingham Bay, Samish Bay and adjoining waters become discolored and marine life in various forms suffers when tide and wind conditions carry the mill effluent afield. Dark discoloration has been traced more than six miles distant from the mill outfalls. Investigations by both the Pollution Control Commission and the Department of Fisheries have noted the presence of high-reading counts of sulphite waste liquor in this area. With the increase over the years of pulp production by this mill, there has occurred a drastic drop in fishing and oystering in the adjacent bays, with tremendous economic cost to individuals and communities bordering these bays. This mill requires immediate enforcement of regulations issued against it first in 1956 and again in 1961. We most urgently request that enforcement help be made available from the U. S. Public Health Service to achieve successful enforcement of Pollution Commission orders issued to this Company.

Scott Paper Company, Anacortes. This sulphite mill produces approximately one hundred and twenty tons of pulp per day and is located on Fidalgo Bay. It discharges more than eight million gallons of spent liquor and wash waters into Guemes Channel via a shallow outfall pipe. Periodically, as repairs become necessary, this discharge is diverted to Fidalgo Bay. This mill has consistently fought installation of adequate pollution abatement facilities by threats of shut-down. Fish kills have been noted in Cape Sante waterway when the discharge is diverted to Fidalgo Bay. Dark discoloration of water is caused by the discharge in both Guemes Channel and Fidalgo Bay. Sludge beds are being built up in Fidalgo Bay adjacent to the mill. Some sulphite waste liquor is sold to the City of Anacortes as a road surfacer. In our opinion, this causes a health hazard when dried and blown into the air as dust particles during the summer months. Immediate installation of abatement facilities planned as long ago as 1947 should be completed.

Scott Paper Company and Weyerhaeuser Timber Companies in Everett. These two mills use a common diffuser type outfall pipe discharging approximately two million seven hundred thousand gallons of spent sulphite liquor alone excluding wash waters into Port Gardner Bay. This deep-water diffuser pipe, when installed in 1950, was considered a temporary measure by both the Pollution Control Commission and the mills, pending installation of recovery facilities. Even though Weyerhaeuser Timber Company agreed in 1950 to convert to the magnesium process, this has not been done and today threatens to shut the mill down if forced to clean up. Fish kills, discolored water, floating debris, are also part of the overall picture in this area. These two mills have a common outfall pipe and are the largest pulp mill pollutors. Immediate enforcement of temporary permit conditions is essential if this area is to be made relatively free from industrial pollution.

Rayonier, Incorporated and Fibreboard Products -- and I have left out Crown-Zellerbach, as I understand that they are installing some recovery facilities -- located in Port Angeles, present somewhat the same picture. In the interest of not being repetitious, we shall refrain from further elaboration regarding these two mills.

In conclusion, I would like to state that we have the necessary information to substantiate the above statements and which we will present at the appropriate time. We sincerely trust that in the best interests of the great majority of the citizens of the State of Washington, and the orderly economic and industrial growth and development of this region, prompt measures be taken on both the Federal and State levels to expedite the equitable solution of this long overdue pollution problem.

I want to thank you gentlemen.

CHAIRMAN STEIN: Thank you, Mr. Gruble. Are there any comments or questions?

MR. BERGERSON: The only comment I would have to make is that I know Mr. Gruble has been working on this sulphite pollution problem for a long time. I think somehow or other, some of it must have gotten over on Mr. Gruble. I notice that he used the term "spent sulphite liquor" and I assume that oyster growers always use the term "sulphite waste liquor", which has been our practice in the Pollution Control Commission. That was my only comment.

CHAIRMAN STEIN: Thank you. In the interest of operating this on an even-handed way, since we said we would keep the record open for a week, if any of you have any changes of statements to make -- changes in your statements or additional statements, you may address them to Mr. Leonard B. Dworsky, U. S. Public Health Service, Room 570, Pittock

Block Building -- that's P-i-t-t-o-c-k B-l-o-c-k Building, Portland, Oregon; and the record will be open for a week.

Now, I think we've had a long, hard and interesting day and don't go away permanently, I hope, because from here on it gets more interesting and I think you might be able to hear some applause from both sides of the aisle.

We'll stand adjourned until 10 o'clock tomorrow morning and we hope to see you tomorrow.

(Whereupon, at 4:29 o'clock p.m., the conference adjourned to reconvene at 10 o'clock a.m., the following day.)

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